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ABSTRACT

This is the third volume of a series produced by the New York State Education Department. Originally developed by four local school districts, the mathematics objectives and sample items included were not intended to be official or comprehensive but rather to be used as an aid to teachers in constructing curricula and in making classroom goals clear and precise. The document presents a series of 337 examples, each of which states an objective and gives a sample item. The objectives are classified under one of 11 sections: sets; number, numeral, and numeration systems; whole numbers; fractions (positive rationals); decimals; ratio, proportion, and per cent; measurement; geometry; problem solving/word problems; algebra; and statistics and probability. For related volumes, see ED 064 165, ED 064 166, ED 064 167, and SE 014 548. (DT)

ED 067237

PROJECT SPPED

System for Program and Pupil Evaluation and Development

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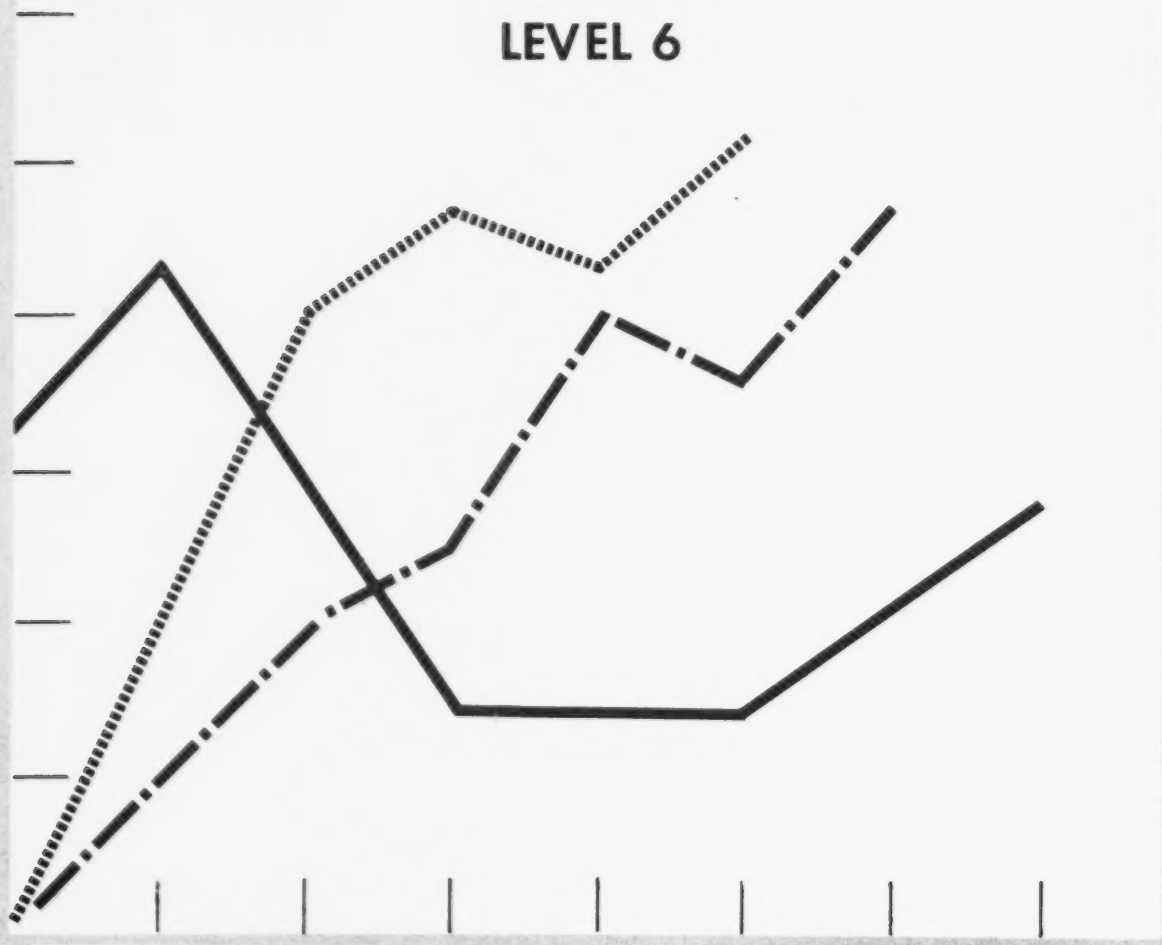
MATHEMATICS OBJECTIVES

LEVEL 6



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The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Bureau of School and Cultural Research
Albany, New York 12224
1972

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MATHEMATICS OBJECTIVES FOR LEVEL 6

Project SPPED

System for Pupil and Program Evaluation and Development

VOLUME III

University of the State of New York
State Education Department
Albany, New York 12224

FOREWORD

The mathematics objectives and items in this packet were originally developed by four local school districts who were participating in CAM projects sponsored by the New York State Education Department. They were refined, checked for quality, and organized by Gerlach van Gendt of the Bureau of School and Cultural Research with assistance from Lee Negus of the Bureau of Mathematics Education.

These objectives are not an official or endorsed set of Mathematics Objectives. Nor do they claim to be comprehensive (i.e., covering all material in the relevant grade levels).

Nonetheless, it is our hope that many teachers will find these objectives useful and helpful in constructing curricula for their classes. These objectives can help you, as a teacher, make vague classroom goals clear and precise. But, the responsibility for what is taught is still the teacher's.

Sets

		6 1 6 7 0	

OBJECTIVE: Given a description of a set, the student will roster the set.

SAMPLE ITEM: List the members of the set { whole numbers 1 to 7 }.

Answer: $\{1, 2, 3, 4, 5, 6, 7\}$

Level 6 Classification - Sets, Listing a Set/Set Notation/ Terminology/Finite-Infinite	41 Descriptor - Listing a Set Role, Student

		6 1 6 7 5	

OBJECTIVE: Given a defined set of natural numbers, the student will write the set.

SAMPLE ITEM: Write a set A containing all natural numbers less than 11 and greater than 6.

Answer: $A = \{7, 8, 9, 10\}$

Level 6 Classification - Sets, Listing a Set/Set Notation/ Terminology/Finite-Infinite	41 Descriptor - Listing a Set Role, Student

		6 1 6 8 0	

OBJECTIVE: Given a set, the student will name the cardinal number of the set.

SAMPLE ITEM: Given: $B = \{M, N, P, Z\}$

Name the cardinal number.

Answer: set B = 4

Level 6 Classification - Sets, Sets on the Number Line/ Cardinal Numbers/ One-to-One Correspondence	41 Descriptor - Cardinal No. of a Set Role, Student

		6 1 6 8 5	

OBJECTIVE: The student will write and name the symbol for the intersection or the union.

SAMPLE ITEM: Write the names for the following symbols:

A. $\cap$ B. $\cup$

Answer: A. Intersection
B. Union

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Set Notation Role, Student

		61690	

OBJECTIVE: Given two intersecting sets, the student will list the union.

SAMPLE ITEM: Given: $A = \{1, 2, 3\}$ and $B = \{3, 4, 5\}$
List the union $A \cup B$.

Answer: $A \cup B = \{1, 2, 3, 4, 5\}$

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Union of Sets Role, Student

		61695	

OBJECTIVE: Given 3 sets, each with four elements or less, the student will list the elements in the union.

SAMPLE ITEM: List the elements which form the union of the three sets:

A. $\{r, s\}$

B. $\{t\}$

C. $\{u, v\}$

Answer: $\{r, s, t, u, v\}$

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Union of Sets Role, Student

		6 1 7 0 0	

OBJECTIVE: Given two sets with at least one member in common, the student will name their intersection.

SAMPLE ITEM: Given: Set A = $\{1, 2, 3\}$ and Set B = $\{2, 3, 4\}$
Name the intersection $A \cap B$.

Answer: $A \cap B = \{2, 3\}$

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Intersection of Sets Role, Student

		6 1 7 0 5	

OBJECTIVE: Given three sets with at least one member in common, the student will name the intersection.

SAMPLE ITEM: Given: Set A = $\{1, 2, 3\}$, Set B = $\{2, 4, 5\}$,
Set C = $\{2, 7, 8\}$

Name $A \cap B \cap C$.

Answer: $A \cap B \cap C = \{2\}$

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Intersection of Sets Role, Student

		6 1 7 1 0	

OBJECTIVE: Given 3 sets of numbers, the student will identify the numbers which are in the intersection of the 3 sets.

SAMPLE ITEM: Find: $A \cap B \cap C$ if $A = \{1, 2, 3\}$ $B = \{2, 3, 4\}$ and $C = \{3, 4, 5\}$

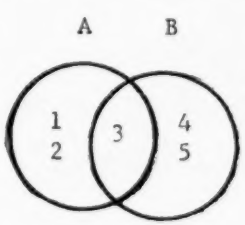
Answer: $A \cap B \cap C = \{3\}$

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Intersection of Sets Role, Student

		6 1 7 1 5	

OBJECTIVE: Given two intersecting sets in Venn circles, the student will list the union.

SAMPLE ITEM: Given:



Name the union.

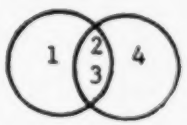
Answer: $\{1, 2, 3, 4, 5\}$

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Pictorial Representation of Sets Role, Student

		6 1 7 2 0	

OBJECTIVE: Given two intersecting sets displayed in Venn circles, the student will list the intersection.

SAMPLE ITEM: Given: A B



Write the intersection.

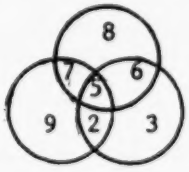
Answer: {2, 3}

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Pictorial Representation of Sets Role, Student

		6 1 7 2 5	

OBJECTIVE: Given a Venn diagram, the student will list the elements in the intersection of three sets.

SAMPLE ITEM: Roster the set of the intersection of the three sets:



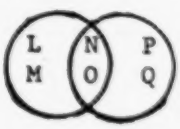
Answer: 5

Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Pictorial Representation of Sets Role, Student

		6 1 7 3 0	

OBJECTIVE: Given a Venn diagram, the student will list the elements in the union or intersection of two sets.

SAMPLE ITEM: List the elements found in the union of the sets in the Venn diagram below. List also the elements found in the intersection of the same sets.



Answer: Union - {L, M, N, O, P, Q}
Intersection - {N, O}

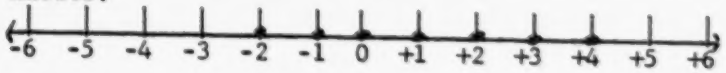
Level 6 Classification - Sets, Union and Intersection/ Disjoint/Pictorial Representation	41 Descriptor - Pictorial Representation of Sets Role, Student

		6 1 7 3 5	

OBJECTIVE: Given a set of numbers, the student will draw the set on the number line.

SAMPLE ITEM: Draw and write the set of integers from -2 through +4 on a number line.

Answer:



-2, -1, 0, +1, +2, +3, +4

Level 6 Classification - Sets, Sets on the Number Line/ Cardinal Numbers/ One-to-One Correspondence	41 Descriptor - Sets on the No. Line Role, Student

		6 1 7 4 0	

OBJECTIVE: Given a group of pairs of sets, the student will choose the pairs of sets which have a one-to-one correspondence.

SAMPLE ITEM: Choose the pair of sets which have one-to-one correspondence:

a. {△ △}, {▽, ▽}

b. {○}, {□ , □, □}

Answer: a

Level 6 Classification - Sets, Sets on the Number Line/ Cardinal Numbers/ One-to-One Correspondence	41 Descriptor - One-to-One Correspondence Role, Student

		6 1 7 4 5	

OBJECTIVE: Given a set, the student will name a subset.

SAMPLE ITEM: Name a subset containing two elements for the following set: {1, 2, 3, 4}.

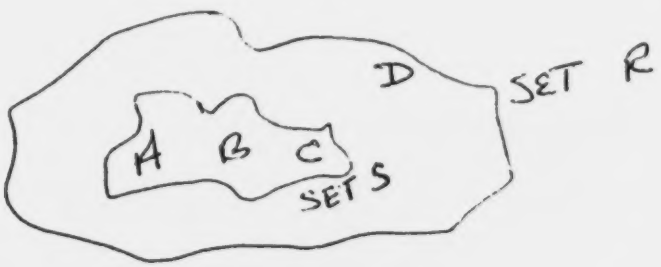
Answer: {1, 2} OR {1, 3} OR {1, 4} OR {2, 3} OR {2 , 4} OR {3, 4}

Level 6 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Determining Subsets Role, Student

		6 1 7 5 0	

OBJECTIVE: Given two sets, the student will name the subsets.

SAMPLE ITEM:



R $\cup$ S. Name the subset.

Answer: S $\subset$ R

Level 6 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Determining Subsets Role, Student

		6 1 7 5 5	

OBJECTIVE: Given a list of sets including the empty set, the student will identify the empty set.

SAMPLE ITEM: Name the $\emptyset$ set:

A [a] set of astronauts who have landed on Venus
B [a] set of astronauts who have landed on the moon
C [a] set of astronauts who have orbited the earth

Answer: A = $\emptyset$

Level 6 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Empty Set Role, Student

		6 1 7 6 0	

OBJECTIVE: Given a set which contains no elements, the student will name that set.

SAMPLE ITEM: Name the set: { }

Answer: empty set or ∅

Level 6 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Empty Set Role, Student

		6 1 7 6 5	

OBJECTIVE: Given a list of symbols, the student will select and write the symbol for the empty (null) set.

SAMPLE ITEM: Select the letter of the symbol that shows the empty (null) set.

A. {0}

B. { }

C. {∅}

D. {zero}

Answer: B.

Level 6 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Empty Set Role, Student

Number, Numeral, and Numeration Systems

		6 1 7 7 5	

OBJECTIVE: The student will be able to identify the whole numbers from a list of numbers.

SAMPLE ITEM: List the whole numbers from the following:

$5,\ 8\frac{1}{2},\ 10,\ \frac{8}{9},\ 3.6$

Answer: 5, 10

Level 6 Classification - Number, Numeral, and Numeration Systems, Numbers/Counting/ Identifying Numerals	41 Descriptor - Identifying Whole Numbers Role, Student

		6 1 7 8 0	

OBJECTIVE: The student will be able to identify the set of natural numbers from a list of four sets of numbers.

SAMPLE ITEM: Identify the set of natural numbers.

a) $\{...-2, -1, 0, 1, 2...\}$

b) $\{0, 1, 2, 3...\}$

c) $\{...-2, -1, 0\}$

d) $\{1, 2, 3...\}$

Answer: d

Level 6 Classification - Number, Numeral, and Numeration Systems, Numbers/Counting/ Identifying Numerals	41 Descriptor - Identifying Natural Numbers Role, Student

		6 1 7 8 5	

OBJECTIVE: Given a number expressed in words, the student will rename it in numerals.

SAMPLE ITEM: Write: Five hundred **and forty-seven** in numerals.

Answer: 547

Level 6 Classification - Number, Numeral, and Numeration Systems, Numbers/Counting/ Identifying Numerals	41 Descriptor - Reading and Writing Numbers Role, Student

		6 1 7 9 0	

OBJECTIVE: Given an integer, the student will write the correct word form of that integer or vice versa.

SAMPLE ITEM: Write the symbol for negative 11.

Answer: (-11)

Level 6 Classification - Number, Numeral, and Numeration Systems, Numbers/Counting/ Identifying Numerals	41 Descriptor - Converting Numeral to Word Role, Student

		61795	

OBJECTIVE: **Given two whole numbers and three symbols for** equality or inequality, the student will select the symbol demonstrating a relationship between the numbers.

SAMPLE ITEM: Write $<$, $>$, or = in the $\square$ to make the following sentence true:

$$11 \square 15$$

Answer: $<$

Level 6 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Inequalities on Whole Numbers Role, Student

		61800	

OBJECTIVE: Given an inequality problem involving addition, subtraction, multiplication, or division of whole numbers, the student will compute and write the solution set.

SAMPLE ITEM: Write the solution set if the replacement set is the set of whole numbers for the following inequality:

$$M + 3 > 6$$

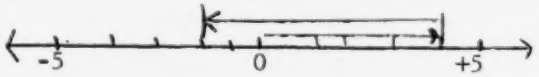
Answer: $\{4, 5, 6...\}$

Level 6 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Inequalities on Whole Numbers Role, Student

		6 1 8 0 5	

OBJECTIVE: Given a number line representing the addition of any **two integers, the** student will write the number sentence.

SAMPLE ITEM: Write the addition problem expressed on the number line below as a number sentence.



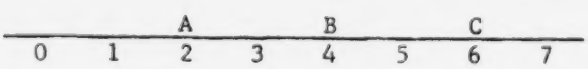
Answer: (+4) + (-6) = (-2)

Level 6 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Addition on Number Line Role, Student

		6 1 8 0 5	0 0 0 0 5

OBJECTIVE: Given specific points on the number line, the student will name the coordinates.

SAMPLE ITEM:



What is the coordinate of point A, point B, point C?

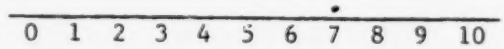
Answer: point A = 2, point B = 4, point C = 6

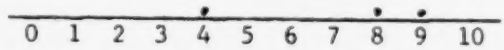
Level 6 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Coordinates on Number Line Role, Student

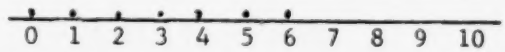
		6 1 8 1 0	

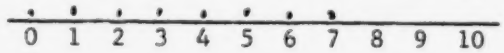
OBJECTIVE: Given a set of points on a number line, the student will select and write the one(s) which satisfies the inequality relation more than (7) or less than (<).

SAMPLE ITEM: Select and write the letter of the graph that best describes the solution set for 14 - 7 > ☐ in whole numbers.

A. 

B. 

C. 

D. 

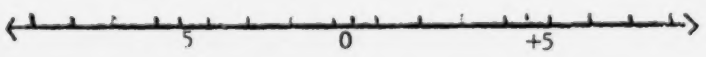
Answer: C

Level 6 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Inequalities on Number Line Role, Student

		6 1 8 1 5	

OBJECTIVE: **Given two integers, the student will find** and write the difference using the number line.

SAMPLE ITEM: Find the difference using the number line:
(+4) - (+3) =



Answer: +1

Level 6 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Subtraction on Number Line Role, Student

		6 1 8 2 0		

OBJECTIVE: Given a series of ordinal numbers, the student will write the corresponding cardinal number for each ordinal number.

SAMPLE ITEM: Write a cardinal number for each ordinal number: first, second, third.

Answer: 1, 2, 3

Level 6 Classification - Number, Numeral, and Numeration Systems, Cardinal and Ordinal Numbers	41 Descriptor - Cardinal and Ordinal Numbers Role, Student

		6 1 8 2 5		

OBJECTIVE: Given a series of cardinal numbers, the student will write an ordinal number for each cardinal number.

SAMPLE ITEM: Write an ordinal number for each of the following cardinal numbers: 1, 2, 3.

Answer: first, second, third

Level 6 Classification - Number, Numeral, and Numeration Systems, Cardinal and Ordinal Numbers	41 Descriptor - Cardinal and Ordinal Numbers Role, Student

		6 1 8 3 0	

OBJECTIVE: Given a number, **six digits or less, the** student will select and write the place value of any digit.

SAMPLE ITEM: Give the value of the place of the underlined digit in the following numeral:

467,892

Answer: Thousands

Level 6 Classification - Number, Numeral, and Numeration Systems, Place Value	41 Descriptor - Place Value Role, Student

		6 1 8 3 5	

OBJECTIVE: Given any number, 10 digits or less, the student will write the value of any given digit.

SAMPLE ITEM: Write the value of the underlined digit.

694,583

Answer: 4,000

Level 6 Classification - Number, Numeral, and Numeration Systems, Place Value	41 Descriptor - Place Value Role, Student

		6 1 8 4 0	

OBJECTIVE: Given a Roman numeral, the student will write it as an **Arabic** numeral.

SAMPLE ITEM: Write a **Hindu-Arabic** numeral for XIV.

Answer: 14

Level 6 Classification - Number, Numeral, and Numeration Systems, Roman Numerals	41 Descriptor - Roman Numerals Role, Student

		6 1 8 4 5	

OBJECTIVE: Students will select a decimal number that is the same as a given Roman numeral less than 4,000 or vice versa.

SAMPLE ITEM: What is 2,569 written as a Roman numeral?

(A) MMCCCCCLX (B) MMDLXIX

(C) MDXXXXXXIX (D) MMCX

Level 6 Classification - Number, Numeral, and Numeration Systems, Roman Numerals	41 Descriptor - Roman Numerals Role, Student

		6 1 8 5 0		

OBJECTIVE: Given any number, 10 digits or less, the student will round off the number to any given place.

SAMPLE ITEM: Round the number listed below to the nearest ten million.

697,326,328

Answer: 700,000,000

Level 6 Classification - Number, Numeral, and Numeration Systems, Rounding	41 Descriptor - Rounding Off Role, Student

		6 1 8 6 0		

OBJECTIVE: Given any number in expanded form, using exponential notation the student will rewrite the number in standard form.

SAMPLE ITEM: Rewrite the following number in standard form.

$(5 \times 10^5) + (9 \times 10^4) + (6 \times 10^3) + (3 \times 10^2) + (8 \times 10^1) + 4$

Answer: 596,384

Level 6 Classification - Number, Numeral, and Numeration Systems, Expanded Notation	41 Descriptor - Expanded Notation Role, Student

		6 1 8 6 5		

OBJECTIVE: Given a number, the student will write it in expanded form using exponential notation.

SAMPLE ITEM: Write the following number in expanded, exponential notation: 70,000.

Answer: 7×10^4

Level 6 Classification - Number, Numeral, and Numeration Systems, Expanded Notation	41 Descriptor - Expanded Notation Role, Student

		6 1 8 7 0		

OBJECTIVE: Given a number from the base 10 number system, the student will write different combinations of elements for that number.

SAMPLE ITEM: Write the number 4 in three different ways.

Answer: $1 + 3$, $8 \div 2$, 2^2, $2 + 2$, or 2×2 or $4 + 0$.

Level 6 Classification - Number, Numeral, and Numeration Systems, Renaming	41 Descriptor - Names for Numbers Role, Student

		6 1 8 7 5	

OBJECTIVE: Students will be presented with an incomplete number sentence that illustrates scientific notation, such as 10,640 = ☐ x 10^4. They will select the number that should be placed in the blank to make the sentenct true.

SAMPLE ITEM: 11,730 = ☐ x 10^3

(A) 11.73 (B) 1.73 (C) **119.3** (D) 1173

Level 6 Classification - Number, Numeral, and Numeration Systems, Scientific Notation	41 Descriptor - Scientific Notation Role, Student

		6 1 8 8 0	

OBJECTIVE: **Given a number in base 10, of no more than two digits, the student will write it in base 2.**

SAMPLE ITEM: Write 3 (ten) as a base **2 numeral.**

Answer: 11 (two)

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than **10**	41 Descriptor - Base 2 Role, Student

		6 1 8 8 5	

OBJECTIVE: Given a base 2 number of no more than seven digits, the student will convert the number into a base 10 number.

SAMPLE ITEM: Convert the following base 2 number into a base 10 number: 10_{two}

Answer: 2_{ten}

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Base 2 Role, Student

		6 1 8 9 0		

OBJECTIVE: Students will select a base 6 number which is the same as a given 2-digit base 10 number or will select a base 10 number which is the same as a given 3-digit base 6 number.

SAMPLE ITEM: Change to base 10.

151 (six) = ☐

(A) 153
(B) 25
(C) 67
(D) 22 .

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Base 6 Role, Student

		6 1 8 9 5	

OBJECTIVE: Given a 2-digit whole number in base 10, the student will write it in base 7.

SAMPLE ITEM: Find the base 7 numeral for 61_{ten}

Answer: 115_{seven}

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Base 7 Role, Student

		6 1 9 0 0		

OBJECTIVE: Given a three-digit whole number in base 10, the student will convert it to a base 8 number.

SAMPLE ITEM: Convert 100_{ten} to a base 8 number.

Answer: 144_{8}

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Base 8 Role, Student

		6 1 9 0 5	

OBJECTIVE: Given a number in base 8, the student will change it to a number in base 2.

SAMPLE ITEM: Change 11_8 to a base 2 number.

Answer: 1001_2

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Base 8 Role, Student

		6 1 9 2 0	

OBJECTIVE: Given two numbers in base 8, the student will find the product in base 8.

SAMPLE ITEM: Find the product: $4_8 \times 5_8 =$ _____$_8$

Answer: 24_8

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Base 8 Role, Student

		6 1 9 3 0	

OBJECTIVE: Given a number in base 10, the student will change it to a base 12 number.

SAMPLE ITEM: Change 13_{10} to a base 12 number.

Answer: 11_{12}

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Base 12 Role, Student

		6 1 9 3 5	

OBJECTIVE: Given a whole number in a base other than base 10, the student will write it in base 10.

SAMPLE ITEM: Write 1100_2 as a base 10 number.

Answer: 12_{10}

Level 6 Classification - Number, Numeral, and Numeration Systems, Bases other than 10	41 Descriptor - Mixed bases Role, Student

Whole Numbers

		6 1 9 4 0	

OBJECTIVE: The student will add a series of two whole numbers with no carrying.

SAMPLE ITEM: Add:
$$\begin{array}{r} 40 \\ +\ 21 \\ \hline 61 \end{array}$$

Level 6 Classification - Whole Numbers, Addition	41 Descriptor - Adding Two Whole Nos. Without Carrying Role, Student

		6 1 9 4 5	

OBJECTIVE: The student will add two whole numbers with carrying.

SAMPLE ITEM: Add:
$$\begin{array}{r} 109 \\ +236 \\ \hline 345 \end{array}$$

Level 6 Classification - Whole Numbers, Addition	41 Descriptor - Adding Two Whole Nos. With Carrying Role, Student

		6 1 9 5 0	

OBJECTIVE: Students will select the number which is the correct answer to an addition problem consisting of no more than four 5-digit numbers.

SAMPLE ITEM:

60,573
34,218
46,017
+ 25,583

(A) 166,391
(B) 155,271
(C) 165,391
(D) 391,166

Level 6 Classification - Whole Numbers, Addition	41 Descriptor - Adding Whole Numbers Role, Student

		6 1 9 5 5	

OBJECTIVE: The student will add a series of no more than five whole numbers.

SAMPLE ITEM: Add:

601
7
38
+ 456
1102

Level 6 Classification - Whole Numbers, Addition	41 Descriptor - Adding Whole Numbers Role, Student

		6 1 9 6 0	

OBJECTIVE: The student will subtract one whole number from another whole number without borrowing.

SAMPLE ITEM: Subtract:

$$\begin{array}{r} 81 \\ -20 \\ \hline 61 \end{array}$$

Level 6 Classification - Whole Numbers, Subtraction	41 Descriptor - Subtraction-Whole Nos. - Without Borrowing Role, Student

		6 1 9 6 5	

OBJECTIVE: The student will subtract one whole number, without zeros, from another whole number, without zeros, with borrowing.

SAMPLE ITEM: Subtract:

$$\begin{array}{r} 33 \\ -17 \\ \hline 16 \end{array}$$

Level 6 Classification - Whole Numbers, Subtraction	41 Descriptor - Subtraction-Whole Nos. - With Borrowing Role, Student

		6 1 9 7 0		

OBJECTIVE: The student will subtract one whole number from another with zeros in the minuend, with borrowing.

SAMPLE ITEM: Subtract:

$$\begin{array}{r} 30 \\ -12 \\ \hline 18 \end{array}$$

Level 6 Classification - Whole Numbers, Subtraction	41 Descriptor - Subtraction-Whole Nos. - with Borrowing Role, Student

		6 1 9 7 5		

OBJECTIVE: Given two numbers of six digits or less, the student will compute and write the difference.

SAMPLE ITEM: Compute and write the difference:

57,972 - 38,985

Answer: 18,987

Level 6 Classification - Whole Numbers, Subtraction	41 Descriptor - Subtraction-Whole Nos. - With Borrowing Role, Student

		6 1 9 8 0	

OBJECTIVE: Students will select the number which is the correct answer to a subtraction problem consisting of no more than two 6-digit numbers. Some of the digits in the subtrahend may be larger than corresponding digits in the minuend.

SAMPLE ITEM:

$$\begin{array}{r} 657{,}342 \\ -\ 108{,}461 \\ \hline \end{array}$$

(A) 551,121
(B) 548,881
(C) 559,981
(D) 865,803

Level 6 Classification - Whole Numbers, Subtraction	41 Descriptor - Subtraction-Whole Nos. - With Borrowing Role, Student

		6 1 9 8 5	

OBJECTIVE: Given a problem involving addition or subtraction, the student will name the sum or difference.

SAMPLE ITEM:

$$\begin{array}{r} 25 \\ +\ 19 \\ \hline \end{array}$$

Answer: 44

Level 6 Classification - Whole Numbers, Subtraction	41 Descriptor - Addition and Subtraction - Whole Numbers Role, Student

		6 1 9 9 0	

OBJECTIVE: The student will multiply a 2-digit number by a 1-digit number.

SAMPLE ITEM: Multiply:

$$\begin{array}{r} 60 \\ \times\ 8 \\ \hline 480 \end{array}$$

Level 6 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 1 9 9 5	

OBJECTIVE: The student will multiply two whole numbers of no more than four digits.

SAMPLE ITEM: Multiply:

$$\begin{array}{r} 133 \\ \times\ 65 \\ \hline 8645 \end{array}$$

Level 6 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 2 0 0 0	

OBJECTIVE: Given any two factors, each four digits or less, and one containing a zero, the student will compute and write the product.

SAMPLE ITEM: Find the product of the following two numbers:

$$\begin{array}{r} 206 \\ \times\ 21 \\ \hline \end{array}$$

Answer: 4,326

Level 6 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 2 0 0 5	

OBJECTIVE: Students will select the number which is the correct answer to a multiplication problem in which the total number of digits in both the multiplier and multiplicand is not to exceed six.

SAMPLE ITEM:

$$\begin{array}{r} 6{,}057 \\ \times\ 34 \\ \hline \end{array}$$

(A) 205,938
(B) 204,518
(C) 105,938
(D) 145,938

Level 6 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 2 0 1 0	

OBJECTIVE: The student will multiply two whole numbers of no more than four digits, with a zero in the 10's or 100's place, in the multiplicand.

SAMPLE ITEM: Multiply:
$$\begin{array}{r} 806 \\ \times\ 23 \\ \hline 18{,}538 \end{array}$$

Level 6 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 2 0 1 5	

OBJECTIVE: Given a multiplication problem with a missing product or factor, the student will compute and write the missing number.

SAMPLE ITEM: Write the missing term: $12 \times ____ = 72$

Answer: 6

Level 6 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 2 0 2 0	

OBJECTIVE: The student will divide 1-digit whole number into a 2-digit whole number, without a remainder.

SAMPLE ITEM: Divide: $91 \div 7 = 13$

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division without Remainder Role, Student

		6 2 0 2 5	

OBJECTIVE: Given a division example with a remainder, the student will name the quotient and the remainder in whole number form.

SAMPLE ITEM: Divide: $27 \div 4$

Answer: 6 R 3

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 3 0	

OBJECTIVE: The student will divide a 1-digit number into a 2-digit number in which the quotient has a remainder.

SAMPLE ITEM: Divide: $51 \div 4 =$ _____

Answer: 12 R3

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 3 5	

OBJECTIVE: Given a division problem where the quotient contains a remainder, the student will find the quotient and name the remainder in fractional form.

SAMPLE ITEM: Find the quotient: $23\overline{)678}$

Answer: $29\ \frac{11}{23}$

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 4 0	

OBJECTIVE: Given a dividend, five digits or less, and a 2-digit divisor, the student will compute and write the quotient, expressing the remainder as a fraction in simplest form.

SAMPLE ITEM: Compute and write the quotient with the remainder expressed as a fraction in lowest terms: 998 ÷ 16 = _____

Answer: $62\frac{3}{8}$

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 4 5	

OBJECTIVE: The student will divide a 5-digit whole number by a 2-digit whole number, without a remainder.

SAMPLE ITEM: Divide: 33,872 ÷ 16 = _____

Answer: 2117

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division without Remainder Role, Student

		6 2 0 5 0	

OBJECTIVE: The student will divide a 5-digit whole number by a 2-digit whole number in which the quotient has a remainder.

SAMPLE ITEM: Divide: 58,364 ÷ 38 = _____

Answer: 1535 R. 34

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 5 5	

OBJECTIVE: Given a 4-digit dividend and a 2-digit divisor (either containing a zero), the student will compute and write the quotient.

SAMPLE ITEM: Find the quotient:

$$37\overline{)1039}$$

Answer: 28 R. 3 or $28\frac{3}{37}$

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 6 0	

OBJECTIVE: Given a dividend, five digits or less and a divisor of one or two digits, the student will compute and write the quotient.

SAMPLE ITEM: Find and write the quotient:

12,116 ÷ 35 = _____

Answer: 347 R. 11

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 6 5	

OBJECTIVE: Students will select the number which is the quotient with whole number remainder of a division problem in which the divisor is three digits or less and the dividend is five digits or less.

SAMPLE ITEM: $675\overline{)42{,}013}$

(A) 61 R. 16
(B) 62 R. 163
(C) 63 R. 163
(D) 62

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 2 0 7 0	

OBJECTIVE: Given a 6-digit **dividend** and a 3-digit divisor, the student will compute and write the quotient.

SAMPLE ITEM: Find the quotient:

$$496\overline{)120{,}538}$$

Answer: 243 R. 10

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division Without Remainder Role, Student

		6 2 0 7 5	

OBJECTIVE: Given a problem involving multiplication or division, the student will name the product or quotient.

SAMPLE ITEM:

$$\begin{array}{r} 23 \\ \times 3 \end{array}$$

Answer: 69

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Multiplication and Division - Whole Nos. Role, Student

		6 2 0 8 0	

OBJECTIVE: Given an addition example with two addends, the student will use the commutative property to rewrite the problem.

SAMPLE ITEM: Use the commutative property to rewrite the problem: 7 + 14 = _____

Answer: 14 + 7

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Commutative - Whole Numbers Role, Student

		6 2 0 8 5	

OBJECTIVE: Given three addends, whole numbers, the student will apply the commutative principle. (Or change the order of the addends or factors.)

SAMPLE ITEM: From the commutative law of addition we know that: 5 + 8 + 10 = 5 + ___ + ___

Answer: 10, 8

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Commutative - Whole Numbers Role, Student

		6 2 0 9 0	

OBJECTIVE: Given a multiplication problem with two factors, the student will rewrite the factors demonstrating the commutative property.

SAMPLE ITEM: 4 X 6. Rewrite the factors showing the commutative property.

Answer: 6 X 4

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Commutative - Whole Numbers Role, Student

		6 2 0 9 5	

OBJECTIVE: Given three factors, the student will apply the commutative principle (change the order of the operations).

SAMPLE ITEM: Apply the commutative principle of multiplication to the factors 31 and 9.

Answer: 9 X 31 = 31 X 9

or

31 X 9 = 9 X 31

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Commutative - Whole Numbers Role, Student

		6 2 1 0 0	

OBJECTIVE: Given an addition or multiplication example, with two addends or two factors, the student will rewrite the example using the commutative property.

SAMPLE ITEM: Use the commutative property of multiplication to rewrite the problem:

27 X 48

Answer: 48 X 27

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Commutative - Whole Numbers Role, Student

		6 2 1 0 5	

OBJECTIVE: Given three addends (whole numbers), the student will apply the associative principle (or change the grouping of the addends).

SAMPLE ITEM: Apply the associative principle of addition to the addends 3, 4, and 5.

Answer: $(3 + 4) + 5 = 3 + (4 + 5)$

or

$3 + (4 + 5) = (3 + 4) + 5$

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Associative - Whole Numbers Role, Student

		6 2 1 1 0	

OBJECTIVE: Given three addends, the student will apply the associative property.

SAMPLE ITEM: Use the associative property to rewrite the following:

$6 + (5 + 4) = (___ + ___) + ___$

Answer: $(6 + 5) + 4$

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Associative - Whole Numbers Role, Student

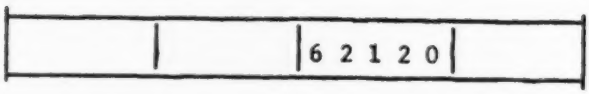
		6 2 1 1 5	

OBJECTIVE: Given a multiplication expression with more than two factors, the student will rewrite the expression using the associative property.

SAMPLE ITEM: Rewrite (6 X 5) X 3 showing the associative property.

Answer: $(6 \times 5) \times 3 = 6 \times (5 \times 3)$

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Associative - Whole Numbers Role, Student



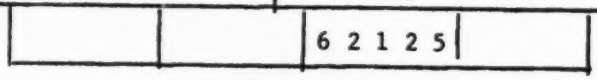
OBJECTIVE: Given three factors, the student will apply the associative principle (change grouping).

SAMPLE ITEM: From the associative principle of multiplication we know that:

(32 X 2) X 3 = _____ X (___X_____)

Answer: 32 X (2 X 3)

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Associative - Whole Numbers Role, Student



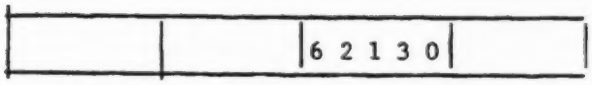
OBJECTIVE: Given an addition or multiplication example, with three addends or three factors, the student will rewrite the example using the associative property.

SAMPLE ITEM: Rewrite the example using the associative property of multiplication.

(6 X 7) X 3

Answer: 6 X (7 X 3)

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Associative - Whole Numbers Role, Student

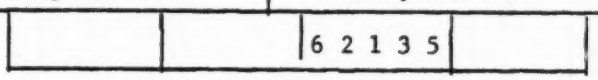


OBJECTIVE: Given an appropriate number example, the student will rewrite the example using the distributive property.

SAMPLE ITEM: Rewrite the following problem using the distributive property: (67 X 32) + (67 X 5)

Answer: 67 X (32 + 5)

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Distributive - Whole Numbers Role, Student



OBJECTIVE: Given a factor and an addition or subtraction, the student will apply the distributive principle.

SAMPLE ITEM: From the distributive principle we know that:

$$8 \times (5 + 8) = _____$$

Answer: $8 \times 5 + 8 \times 8$ or $40 + 64$

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Distributive - Whole Numbers Role, Student

		6 2 1 4 5	

OBJECTIVE: Given an addition example with zero as an addend, the student will write the sum.

SAMPLE ITEM:

$$\begin{array}{r} 16 \\ +\ 0 \\ \hline \end{array}$$

Answer: 16

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Identity Element - Whole Number Role, Student

		6 2 1 5 0	

OBJECTIVE: Given a subtraction example with zero as the subtrahend, the student will write the difference.

SAMPLE ITEM: Find the difference:

$$\begin{array}{r} 9 \\ -0 \\ \hline \end{array}$$

Answer: 9

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Identity Element - Whole Number Role, Student

		6 2 1 5 5	

OBJECTIVE: Given a division problem containing the identity element, the student will solve the problem.

SAMPLE ITEM: Solve the following problem: $31 \div 1 =$ _____

Answer: 31

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Identity Element - Whole Numbers Role, Student

		6 2 1 6 0	

OBJECTIVE: Given an equation, the student will write the inverse equation.

SAMPLE ITEM: (a) Write an inverse subtraction equation for the following addition equation:

$6 + 4 = 10$

___ - ___ = ___

(b) Write an inverse division equation for the following multiplication equation:

$6 \times 4 = 24$

___ ÷ ___ = ___

Answer: (a) $10 - 6 = 4$ or $10 - 4 = 6$
(b) $24 \div 6 = 4$ or $24 \div 4 = 6$

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Inverses - Whole Number Role, Student

		6 2 1 6 5	

OBJECTIVE: The student will name the operations for which the set of whole numbers is closed.

SAMPLE ITEM: The set of whole numbers is closed under the operations of ? .

Answer: addition and multiplication

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Closure - Whole Numbers Role, Student

		6 2 1 7 0	

OBJECTIVE: Given a number, the student will name the factors of that number.

SAMPLE ITEM: Name the set of factors of 14.

Answer: $\{1, 2, 7, 14\}$

Level 6 Classification - Whole Numbers, Factors/Common Factors/ G.C.F/Divisibility Rules	41 Descriptor - Factors Role, Student

		6 2 1 7 0	0 0 0 0 5

OBJECTIVE: Given a list of numbers, the student will name the numbers divisible by 2, 3, 4, 5,....12.

SAMPLE ITEM: Write the numbers divisible by 4 from the following: 4, 8, 9, 12, 16, 18, 20

Answer: 4, 8, 12, 16, 20

Level 6 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibility Rules	41 Descriptor - Divisibility by 2, 3, 4,....12 Role, Student

		6 2 1 8 0	

OBJECTIVE: Given a group of numbers pairs, the student will name their common factors.

SAMPLE ITEM: Name the common factors of 25 and 40.

Answer: 1 and 5

Level 6 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibility Rules	41 Descriptor - Common Factors Role, Student

		6 2 1 8 5	

OBJECTIVE: Students will select the number which is the greatest common factor of a pair of numbers each of which is less than or equal to 50.

SAMPLE ITEM: What is the greatest common factor (GCF) of 12 and 18?

(A) 5 (B) 36 (C) 9 (D) 6

Level 6 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibility Rules	41 Descriptor - Greatest Common Factor Role, Student

		6 2 1 9 0	

OBJECTIVE: Given a pair of numbers, the student will write their greatest common factor.

SAMPLE ITEM: Given 8, 12. Write their greatest common factor.

Answer: 4

Level 6 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibility Rules	41 Descriptor - Greatest Common Factor Role, Student

		6 2 1 9 5	

OBJECTIVE: Given a pair of numbers, the student will name their least common multiple.

SAMPLE ITEM: Given 3, 4. Name their least common multiple.

Answer: 12

Level 6 Classification - Whole Numbers, Multiples/Common Multiples/LCM	41 Descriptor - Lowest Common Multiple Role, Student

		6 2 2 0 0	

OBJECTIVE: Students will select the number which is the lowest common multiple of a pair of numbers each of which is less than or equal to 50.

SAMPLE ITEM: What is the lowest common multiple (LCM) of 6 and 9?

(A) 3 (B) 18 (C) 24 (D) 36

Level 6 Classification - Whole Numbers, Multiples/Common Multiples/LCM	41 Descriptor - Lowest Common Multiple Role, Student

		6 2 2 0 5	

OBJECTIVE: Given a group of like factors, the student will write them in exponential form.

SAMPLE ITEM: Write 2 X 2 X 2 in exponential form.

Answer: 2^3

Level 6 Classification - Whole Numbers, Exponents and Powers	41 Descriptor - Exponential Form Role, Student

		6 2 2 1 0	

OBJECTIVE: Given a number in exponential form, the student will write the product of the exponential form.

SAMPLE ITEM: Rename the number 3^4 and find the product. The exponent indicates that the base number 3 is to be used as a factor four times.

Answer: $3^4 = 3 \times 3 \times 3 \times 3 = 81$

Level 6 Classification - Whole Numbers, Exponents and Powers	41 Descriptor - Exponential Form Role, Student

		6 2 2 1 5		

OBJECTIVE: Given a whole number of no more than two digits, the student will complete the square of that number.

SAMPLE ITEM: $14^2 = 196$

Level 6 Classification - Whole Numbers, Exponents and Powers	41 Descriptor - Squaring a Number Role, Student

		6 2 2 2 0		

OBJECTIVE: Given a number, two digits or less, the student will list the prime factorization of the number.

SAMPLE ITEM: List the prime factorization for the following number: 56

Answer: 2 X 2 X 2 X 7 or 2^3 X 7

Level 6 Classification - Whole Numbers, Prime Composite	41 Descriptor - Identifying Prime Factors Role, Student

		6 2 2 2 5	

OBJECTIVE: Students will select the expression which is the correct prime factorization of a given number equal to or less than 50.

SAMPLE ITEM: What is the prime factorization of 24?

(A) 2×12
(B) 3×8
(C) $2^2 \times 6$
(D) $2^3 \times 3$

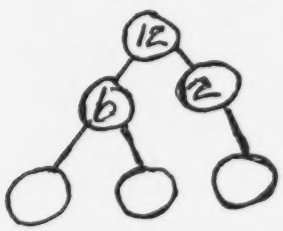
Answer: D

Level 6 Classification - Whole Numbers, Prime Composite	41 Descriptor - Prime Factorization Role, Student

		6 2 2 3 0	

OBJECTIVE: Given a composite number, the student will find the complete factorization through the use of a factor tree.

SAMPLE ITEM: Complete the factor tree:



Answer: 2 X 3 X 2

Level 6 Classification - Whole Numbers, Prime Composite	41 Descriptor - Prime Factorization Role, Student

		6 2 2 3 5	

OBJECTIVE: Given a number, the student will name it as a prime or composite number.

SAMPLE ITEM: Name each of the following numbers as a prime or composite: 16, 17

Since 16 is the product of two factors 2, 8, it is a composite number.

Since 17 is the product of 1 and itself only it is therefore a prime number.

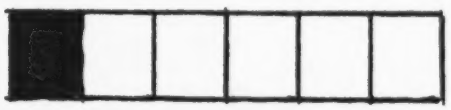
Level 6 Classification - Whole Numbers, Prime Composite	41 Descriptor - Identifying Numbers as Prime or Composite Role, Student

Fractions (Positive Rationals)

		6 2 2 4 0		

OBJECTIVE: Given a shaded fractional part of a figure, the student will write the fractional part as a numeral.

SAMPLE ITEM:



This rectangle is divided into equal parts. What would you write to tell how much of the whole rectangle is shaded?

Answer: $\frac{1}{6}$

Level 6 Classification - Fractions (Positive Rationals), Basic Concepts	41 Descriptor - Labeling Fractional Parts Role, Student

		6 2 2 4 5		

OBJECTIVE: Given a fraction, the student will select and write the numerator or the denominator.

SAMPLE ITEM: In the fraction $\frac{6}{7}$, the 7 is called the ___?___.

Answer: denominator

Level 6 Classification - Fractions (Positive Rationals), Basic Concepts	41 Descriptor - Identifying Numerator/Denominator Role, Student

		6 2 2 5 0	

OBJECTIVE: Given a whole number, the student will write it as a fraction.

SAMPLE ITEM: Write 2 as a fraction.

Answer: $\frac{2}{1}$ or $\frac{4}{2}$ or $\frac{6}{3}$ etc.

Level 6 Classification - Fractions (Positive Rationals), Basic Concepts	41 Descriptor - Changing Whole Numbers to Rational Numbers Role, Student

		6 2 2 5 5	

OBJECTIVE: Given a fraction which is not in lowest terms, the student will reduce it to lowest terms.

SAMPLE ITEM: Reduce to lowest terms: $\frac{6}{8}$

Answer: $\frac{3}{4}$

Level 6 Classification - Fractions (Positive Rationals), Simplifying/Reducing Fractions	41 Descriptor -Reducing Fractions Role, Student

		6 2 2 6 0		

OBJECTIVE: Given a list of proper and improper fractions, the student will select and write the proper or improper fraction.

SAMPLE ITEM: Select a proper and improper fraction from the list below:

$\frac{9}{17}$

$3\frac{9}{8}$

$7\frac{2}{5}$

$\frac{18}{12}$

Answer: Proper: $\frac{9}{17}$

Improper: $\frac{18}{12}$

Level 6 Classification - Fractions (Positive Rationals), Proper/Improper/ Mixed Fractions **Complex**	41 Descriptor - Identifying Proper/ Improper Fractions Role, Student

		6 2 2 6 5		

OBJECTIVE: Given a set of fractions, the student will select and write the mixed number.

SAMPLE ITEM: From the following list of fractions, choose and write the mixed number:

$\frac{9}{16}$, $\frac{27}{8}$, $\frac{36}{18}$, $3\frac{9}{10}$

Answer: $3\frac{9}{10}$

Level 6 Classification - Fractions (Positive Rationals), Proper/Improper/ Mixed Fractions **Complex**	41 Descriptor - Identifying **Mixed Numbers** Role, Student

		6 2 2 7 0		

OBJECTIVE: Given a mixed number, the student will rewrite it as an improper fraction.

SAMPLE ITEM: Write as an improper fraction: $3\frac{1}{8}$

Answer: $\frac{25}{8}$

Level 6 Classification - Fractions (Positive Rationals), Proper/Improper/ Mixed Fractions **Complex**	41 Descriptor - Changing Mixed to Improper Fractions Role, Student

		6 2 2 7 5		

OBJECTIVE: Given an improper fraction, the student will rewrite it as a mixed number.

SAMPLE ITEM: Write as a mixed number: $\frac{25}{7}$

Answer: $3\frac{4}{7}$

Level 6 Classification - Fractions (Positive Rationals), Proper/Improper/ Mixed Fractions **Complex**	41 Descriptor - Changing Improper Fractions to Mixed No. Role, Student

		6 2 2 8 0	

OBJECTIVE: Given a multiplication problem with the factors as mixed numbers, the student will rewrite the problem in the form of improper fractions.

SAMPLE ITEM: Rename the factors as improper fractions:

$$3\frac{1}{2} \times 2\frac{1}{4}$$

Answer: $\frac{7}{2} \times \frac{9}{4}$

Level 6 Classification - Fractions (Positive Rationals), Proper/Improper/ Mixed Fractions **Complex**	41 Descriptor - Changing Improper Fractions to Mixed No. Role, Student

		6 2 2 8 5	

OBJECTIVE: Given a mixed number and an unlike fraction, the student will compute the difference in lowest terms (no borrowing).

SAMPLE ITEM: Compute the difference in lowest terms:

$$10\frac{3}{4} - \frac{1}{20} =$$

Answer: $10\frac{7}{10}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 2 9 0	

OBJECTIVE: Given a mixed number and a fraction, the student will compute the difference (borrowing involved).

SAMPLE ITEM: Subtract:

$$\begin{array}{r} 8\frac{1}{6} \\ -\ \frac{3}{4} \\ \hline 7\frac{5}{12} \end{array}$$

Level 6 Classification - Fractions(Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 2 9 5	

OBJECTIVE: Given a list of fractions, the student will select the ones that are equivalent.

SAMPLE ITEM: From the following, list the equivalent fractions:

$$\frac{1}{2}, \frac{2}{3}, \frac{4}{7}, \frac{4}{8}, \frac{6}{12}, \frac{8}{4}$$

Answer: $\frac{1}{2}, \frac{4}{8}, \frac{6}{12}$

Level 6 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Identifying Equivalent Fractions Role, Student

		6 2 3 0 0	

OBJECTIVE: Given a fraction, the student will identify equivalent fractions of that fraction.

SAMPLE ITEM: Choose the equivalent fraction of $\frac{2}{3}$.

a) $\frac{8}{12}$ b) $\frac{1}{3}$ c) $\frac{5}{9}$ d) $\frac{7}{12}$

Answer: (a)

Level 6 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Identifying Equivalent Fractions Role, Student

		6 2 3 0 5	

OBJECTIVE: Students will select the fraction, either proper or improper, or mixed number, which is not equivalent to a given proper or improper fraction or mixed number.

SAMPLE ITEM: Which fraction does not equal $\frac{5}{9}$?

(A) $\frac{15}{18}$ (B) $\frac{10}{18}$ (C) $\frac{20}{36}$ (D) $\frac{35}{63}$

Level 6 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Identifying Equivalent Fractions Role, Student

		6 2 3 1 0	

OBJECTIVE: Given a fraction, the student will write an equivalent fraction.

SAMPLE ITEM: Write an equivalent fraction for: $\frac{3}{4} = \frac{}{16}$

Answer: $\frac{12}{16}$

Level 6 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Writing Equivalent Fractions Role, Student

		6 2 3 1 5	

OBJECTIVE: Given a fraction, the student will select and write an equivalent fraction from a given list of fractions.

SAMPLE ITEM: Which of the following fractions is equivalent to $\frac{9}{16}$?

$\frac{18}{36}$, $\frac{27}{48}$, $\frac{36}{90}$, $\frac{45}{115}$

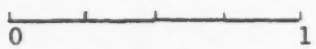
Answer: $\frac{27}{48}$

Level 6 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Writing Equivalent Fractions Role, Student

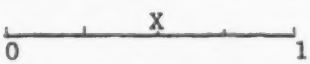
		6 2 3 2 0	

OBJECTIVE: Given a fraction, less than one, the student will identify the point on a number line which represents the fraction.

SAMPLE ITEM: On the number line, mark an X on the point that represents the number $\frac{1}{2}$.



Answer:

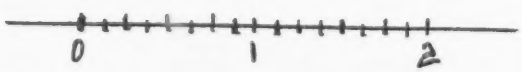


Level 6 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Identifying Fractions on Number Line Role, Student

		6 2 3 2 5	

OBJECTIVE: Given a positive rational number, greater than 1, the student will identify the point, on a number line, that corresponds to the given rational number.

SAMPLE ITEM: Mark an X on the point, on the number line, that corresponds to $\frac{9}{8}$.

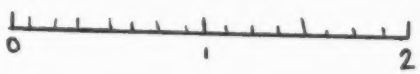


Level 6 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Identifying Fractions on Number Line Role, Student

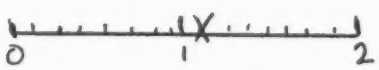
		6 2 3 3 0		

OBJECTIVE: Given a positive mixed number, the student will identify the point on a number line which corresponds to the mixed number.

SAMPLE ITEM: Mark an X on the point, on the number line, that corresponds to $1\frac{1}{8}$.



Answer:



Level 6 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Identifying Fractions on Number Line Role, Student

		6 2 3 3 5		

OBJECTIVE: Given a number line with a labeled point, the student will write a fraction that represents the labeled point.

SAMPLE ITEM: Write a fraction for the labeled point:

Answer: $\frac{2}{3}$

Level 6 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Identifying Fractions on Number Line Role, Student

		6 2 3 4 0		

OBJECTIVE: Given a set of rational numbers, the student will arrange them in order from the least to greatest value.

SAMPLE ITEM: Arrange in order from the least to greatest value:

$$\frac{1}{8}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$$

Answer: $\frac{1}{8}, \frac{1}{5}, \frac{1}{4}, \frac{1}{3}$

Level 6 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Ordering of Fractions Role, Student

		6 2 3 4 5		

OBJECTIVE: Given two fractions and three symbols for equality or inequality the student will select the symbol demonstrating a relationship between the two fractions.

SAMPLE ITEM: Using one of the symbols $\rangle$, $\langle$ or =, fill in the $\square$.

$$\frac{2}{3} \square \frac{4}{5}$$

Answer: $\langle$

Level 6 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Ordering of Fractions Role, Student

		6 2 3 5 0	

OBJECTIVE: Given two like fractions, the student will compute the sum and give the answer in lowest terms.

SAMPLE ITEM: Add and reduce to the lowest terms:

$$\frac{2}{3} + \frac{1}{3} =$$

Answer: 1

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Adding Like Fractions Role, Student

		6 2 3 5 0	0 0 0 0 5

OBJECTIVE: Given a set of fractions, the student will list the like fractions in the set.

SAMPLE ITEM: List the like fractions from the following:

$$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{2}{3}, \frac{5}{6}$$

Answer: $\frac{1}{3}, \frac{2}{3}$

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Identifying Like Fractions Role, Student

		6 2 3 5 5	

OBJECTIVE: Given two like fractions, the student will compute the sum in lowest terms.

SAMPLE ITEM: Add and reduce to the lowest terms:

$$\frac{1}{5} + \frac{3}{10} =$$

Answer: $\frac{1}{2}$

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Adding Unlike Fractions Role, Student

		6 2 3 5 5	0 0 0 0 5

OBJECTIVE: Given two unlike fractions, the student will rewrite the fractions with a common denominator.

SAMPLE ITEM: Rewrite the fractions $\frac{2}{5}$ and $\frac{3}{4}$ with a common denominator.

Answer: $\frac{8}{20}$, $\frac{15}{20}$

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Finding Common Denominators Role, Student

		6 2 3 6 0	

OBJECTIVE: Given two mixed numbers with like denominators, the student will compute the sum in lowest terms.

SAMPLE ITEM: Add and reduce to lowest terms:

$1\frac{1}{2} + 2\frac{1}{2} =$

Answer: 4

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 2 3 6 5	

OBJECTIVE: Given two mixed numbers with unlike denominators, the student will compute the sum in the lowest terms.

SAMPLE ITEM: Add and reduce to the lowest terms:

$2\frac{1}{2} + \frac{3}{4} =$

Answer: $3\frac{1}{4}$

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 2 3 7 0		

OBJECTIVE: Given three mixed numbers, with different denominators, the student will compute and write the sum in lowest terms.

SAMPLE ITEM: Compute the sum and write the answer in lowest terms.

$$3\frac{1}{8} + 2\frac{1}{4} + 1\frac{5}{16}$$

Answer: $6\frac{11}{16}$

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 2 3 7 0	0 0 0 0 5

OBJECTIVE: Given three fractions, with different denominators the student will find and write the least common denominator (L.C.D.).

SAMPLE ITEM: Write the least common denominator (L.C.D.) for the three fractions.

$$\frac{1}{3},\ \frac{1}{6},\ \frac{1}{4}$$

Answer: 12

Level 6 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Least Common Denominator Role, Student

		6 2 3 7 5		

OBJECTIVE: Students will select the proper fraction or mixed number in simplest form which is the correct answer to a given addition problem between two proper fractions, two mixed numbers, or a proper fraction and a mixed number where the denominators are unlike.

SAMPLE ITEM: $1\frac{2}{5} + 2\frac{1}{3} = \square$

(A) $3\frac{3}{8}$ (B) $3\frac{11}{15}$ (C) $3\frac{3}{15}$ (D) $3\frac{2}{15}$

Level 6
Classification - Fractions (Positive Rationals), Addition

41 Descriptor - Addition of Mixed Numbers

Role, Student

		6 2 3 8 0		

OBJECTIVE: Given two like fractions, the student will compute the difference in lowest terms.

SAMPLE ITEM: Find the difference in the lowest terms.

$$\frac{3}{4} - \frac{1}{4} =$$

Answer: $\frac{1}{2}$

Level 6
Classification - Fractions (Positive Rationals), Subtraction

41 Descriptor - Subtracting Like Fractions

Role, Student

		6 2 3 8 5	

OBJECTIVE: Given a whole number and a fraction, the student will subtract the fraction from the whole number.

SAMPLE ITEM: Subtract: $2 - \frac{3}{4} =$

Answer: $1\frac{1}{4}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 3 9 0	

OBJECTIVE: Given two unlike fractions such as $\frac{3}{5}$ and $\frac{4}{9}$, the student will compute the difference, in lowest terms.

SAMPLE ITEM: Subtract: $\frac{5}{8} - \frac{2}{5} =$

Answer: $\frac{9}{40}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Unlike Fractions Role, Student

		6 2 3 9 5		

OBJECTIVE: Given a problem involving addition or subtraction of fractions with like denominators, the student will find the sum or difference expressed in lowest terms.

SAMPLE ITEM: $\frac{4}{5}$

$+\frac{2}{5}$

Answer: $\frac{6}{5}$ or $1\frac{1}{5}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Adding or Subtracting Like Fractions Role, Student

		6 2 4 0 0		

OBJECTIVE: Given an addition or subtraction example involving fractions with unlike denominators, the student will find the answer in lowest terms.

SAMPLE ITEM: $\frac{3}{4} + \frac{1}{3} =$

Answer: $1\frac{1}{12}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Adding or Subtracting Unlike Fractions Role, Student

		6 2 4 0 5	

OBJECTIVE: Students will select the proper fraction or mixed number in simplest form which is the correct answer to a given subtraction problem between two proper fractions, two mixed numbers, or a proper fraction and a mixed number where the denominators are unlike.

SAMPLE ITEM: $7\frac{2}{5} - 2\frac{1}{2} = \square$

(A) $5\frac{1}{3}$ (B) $5\frac{1}{10}$ (C) $4\frac{9}{10}$ (D) $5\frac{1}{5}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 4 1 0	

OBJECTIVE: Given a subtraction example, containing fractions, where regrouping of the minuend is necessary, the student will compute the difference and write it in simplest form.

SAMPLE ITEM: Write the difference in simplest form.

$$9\frac{8}{12} - \frac{11}{12}$$

Answer: $8\frac{3}{4}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 4 1 5	

OBJECTIVE: Given two mixed numbers, the student will compute the difference and write the answer in lowest terms.

SAMPLE ITEM: Find the difference. Write answer in lowest terms.

$$\begin{array}{r} 13\frac{1}{4} \\ -\ 12\frac{5}{8} \\ \hline \end{array}$$

Answer: $\frac{5}{8}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 4 2 0	

OBJECTIVE: Given two mixed numbers with unlike denominators requiring regrouping for subtraction, the student will compute the difference in the lowest terms.

SAMPLE ITEM:

$$\begin{array}{r} 5\frac{1}{6} \\ -\ 2\frac{2}{3} \\ \hline 2\frac{1}{2} \end{array}$$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 4 2 5		

OBJECTIVE: Given two mixed numbers with unlike denominators not requiring regrouping for subtraction, the student will compute the difference in lowest terms.

SAMPLE ITEM: Subtract and reduce to lowest terms:

$$\begin{array}{r} 5\frac{3}{5} \\ -\ 2\frac{1}{10} \\ \hline 3\frac{1}{2} \end{array}$$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtraction of Mixed Numbers Role, Student

		6 2 4 3 0		

OBJECTIVE: Given an addition or subtraction problem involving mixed fractions, the student will find the answer in lowest terms.

SAMPLE ITEM: Solve, and express the answer in lowest terms.

(a) $9\frac{2}{3} + 4\frac{1}{6}$ (b) $3\frac{5}{8} - 1\frac{1}{4}$

Answer: (a) $13\frac{5}{6}$

(b) $2\frac{3}{8}$

Level 6 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Addition or Subtraction of Mixed Numbers Role, Student

		6 2 4 3 5		

OBJECTIVE: Given a multiplication example with two or more fractional factors, the student will name the product in its simplest form.

SAMPLE ITEM: Find the product in lowest terms: $\frac{3}{8} \times \frac{4}{5}$

Answer: $\frac{3}{10}$

Level 6 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Fractions Role, Student

		6 2 4 4 0		

OBJECTIVE: Given two mixed numbers, the student will compute the product in lowest terms.

SAMPLE ITEM: Compute and write the product in lowest terms (simplest form).

$$5\frac{1}{4} \times 6\frac{2}{3} =$$

Answer: 35

Level 6 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Mixed Numbers Role, Student

		6 2 4 4 5	

OBJECTIVE: Given a mixed number and a proper fraction, the student will compute the product and write it in simplest form.

SAMPLE ITEM: Multiply the following factors and write the product in simplest terms:

$$4\frac{3}{5} \times \frac{5}{6} =$$

Answer: $3\frac{5}{6}$ or $\frac{23}{6}$

Level 6 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Mixed Numbers and Fractions Role, Student

		6 2 4 5 0	

OBJECTIVE: Students will select the proper fraction or mixed number in simplest form which is the correct answer to a given multiplication problem between any two of the following: proper fraction, whole number, and mixed number.

SAMPLE ITEM: $\frac{1}{3} \times 1\frac{1}{3} = \square$

(A) $\frac{2}{3}$ (B) 1 (C) $\frac{5}{9}$ (D) $\frac{4}{9}$

Level 6 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Mixed Numbers and Fractions Role, Student

		6 2 4 5 5		

OBJECTIVE: Given a division problem with fractions, the student will compute and write the quotient in simplest form (lowest terms).

SAMPLE ITEM: Express the quotient in lowest terms:

$$\frac{5}{6} \div \frac{9}{10}$$

Answer: $\frac{25}{27}$

Level 6 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Division of Fractions Role, Student

		6 2 4 6 0		

OBJECTIVE: Given a division problem in which either the divisor or the **dividend** is a whole number or a fraction, the student will compute and write the quotient in lowest terms.

SAMPLE ITEM: Find the quotient. Write the answer in lowest terms.

$$7 \div \frac{5}{6}$$

Answer: $8\frac{2}{5}$ or $\frac{42}{5}$

Level 6 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Division of Fractions Role, Student

		6 2 4 6 5	

OBJECTIVE: Given a division problem in which the divisor and the **dividend** are mixed numbers, the student will compute and write the quotient in lowest terms (simplest form).

SAMPLE ITEM: Compute and write the quotient in lowest terms (simplest form).

$$5\frac{1}{3} \div 1\frac{3}{8} =$$

Answer: $\frac{128}{33}$ or $3\frac{29}{33}$

Level 6 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Division of Mixed Numbers Role, Student

		6 2 4 6 5	0 0 0 0 5

OBJECTIVE: Given a division problem involving mixed numbers, the student will rename the factors as improper fractions.

SAMPLE ITEM: Rename the factors as improper fractions:

$$2\frac{1}{3} \div 1\frac{1}{8}$$

Answer: $\frac{7}{3} \div \frac{9}{8}$

Level 6 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Changing Mixed to Improper Fractions Role, Student

		6 2 4 7 0		

OBJECTIVE: Given a division of fractions problem, the student will name the quotient in its simplest form.

SAMPLE ITEM: Solve the division problem:

$$\frac{3}{4} \div \frac{2}{5} =$$

Answer: $1\frac{7}{8}$ or $\frac{15}{8}$

Level 6 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Division of Fractions Role, Student

		6 2 4 7 5		

OBJECTIVE: Students will select the proper fraction or mixed number in simplest form which is the correct answer to a given division problem between any two of the following: proper fraction, whole number, mixed number.

SAMPLE ITEM: $\frac{8}{9} \div 2 = \square$

(A) $\frac{1}{3}$ (B) $1\frac{8}{9}$ (C) $\frac{2}{3}$ (D) $\frac{4}{9}$

Level 6 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Division of Mixed Numbers and Fractions Role, Student

		6 2 4 8 0		

OBJECTIVE: Given an addition example with **three addends**, the student will rewrite the example using the **associative property.**

SAMPLE ITEM: Rewrite the following problem using the **associative property** of addition:

$$\frac{3}{5} + (\frac{7}{8} + \frac{9}{16})$$

Answer: $(\frac{3}{5} + \frac{7}{8}) + \frac{9}{16}$

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Associative Property, Fractions Role, Student

		6 2 4 8 5		

OBJECTIVE: Given a multiplication example with **three factors**, the student will rewrite the example using the **associative property.**

SAMPLE ITEM: Rewrite the following example using the **associative property** of multiplication:

$$\frac{3}{4} * (\frac{2}{7} * \frac{1}{8}) =$$

Answer: $(\frac{3}{4} \times \frac{2}{7}) \times \frac{1}{8}$

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Associative Property, Fractions Role, Student

		6 2 4 9 0		

OBJECTIVE: Given an addition example, with **two addends**, the student will rewrite the example using the **commutative property.**

SAMPLE ITEM: Rewrite the following addition problem using the **commutative property** of addition:

$$\frac{3}{5} + \frac{1}{3} =$$

Answer: $\frac{1}{3} + \frac{3}{5}$

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Commutative Property, Fractions Role, Student

		6 2 4 9 5		

OBJECTIVE: Given a multiplication example, with **two** factors, the student will rewrite the example using the **commutative property.**

SAMPLE ITEM: Rewrite the following example by using the **commutative property** of multiplication:

$$\frac{12}{13} \times 2\frac{1}{7}$$

Answer: $2\frac{1}{7} \times \frac{12}{13}$

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Commutative Property, Fractions Role, Student

		6 2 5 0 0	

OBJECTIVE: Given an example, the student will rewrite the example using the distributive property.

SAMPLE ITEM: Rewrite the following using the distributive property.

$$(\frac{3}{9} \times \frac{7}{8}) + (\frac{3}{9} \times \frac{5}{6})$$

Answer: $\frac{3}{9} \times (\frac{7}{8} + \frac{5}{6})$

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Distributive Property, Fractions Role, Student

		6 2 5 0 5	

OBJECTIVE: Given a problem involving the multiplication of fractions where one factor is equal to one, the student will name the product.

SAMPLE ITEM: Find the product: $\frac{5}{5} \times \frac{3}{7}$

Answer: $\frac{3}{7}$ or $\frac{15}{35}$

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Multiplicative Identity/Fractions Role, Student

91

		6 2 5 1 0	

OBJECTIVE: Given a rational number, the student will write its reciprocal.

SAMPLE ITEM: Write the reciprocal of $\frac{3}{13}$

Answer: $\frac{13}{3}$

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Reciprocals Role, Student

		6 2 5 1 5	

OBJECTIVE: Given a multiplication problem composed of two factors which are reciprocals, the student will name the product.

SAMPLE ITEM: Find the product: $\frac{2}{3} \times \frac{3}{2} =$

Answer: $\frac{6}{6}$ or 1

Level 6 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multicative Inverse	41 Descriptor - Reciprocals Role, Student

Decimals

		6 2 5 2 5	

OBJECTIVE: Given in horizontal form two decimal numbers, each four digits or less, the student will compute and write the sum.

SAMPLE ITEM: The sum of 72.95 and 3.678 is:

Answer: 76.628

Level 6 Classification - Decimals, Addition	41 Descriptor - Adding Decimals Role, Student

		6 2 5 3 0	

OBJECTIVE: Given five decimal numbers, the student will compute and write the sum.

SAMPLE ITEM: Compute the sum of the following addends:

8.88 + .444 + 23.9 + 4.333 + 55.6

Answer: 93.157

Level 6 Classification - Decimals, Addition	41 Descriptor - Adding Decimals Role, Student

		6 2 5 3 5		

OBJECTIVE: Given in horizontal form a whole number and decimal, the student will compute and write the difference.

SAMPLE ITEM: Compute and write the difference:

456 - 87.83

Answer: 368.17

Level 6 Classification - Decimals, Subtraction	41 Descriptor - Subtracting Decimals Role, Student

		6 2 5 4 0		

OBJECTIVE: Given two mixed decimals, each seven digits or less, the student will compute and write the difference.

SAMPLE ITEM: Compute and write the difference.

24679.81 - 802.74

Answer: 23877.07

Level 6 Classification - Decimals, Subtraction	41 Descriptor - Subtracting Decimals Role, Student

		6 2 5 4 5	

OBJECTIVE: Students will select the number that is the correct answer to a given addition or subtraction problem involving decimal numbers. All decimal numbers will have four or fewer digits to the right of the decimal point. The addition problems may have up to four addends. Some of the digits in the subtrahends of subtraction problems may be larger than the corresponding digits in the minuends.

SAMPLE ITEM:

```
  60.5734
  21.8460
  17.2583
+ 26.7085
```

(A) 124.2652
(B) 125.3862
(C) 126.3862
(D) 127.2652

Answer: (C)

Level 6 Classification - Decimals, Subtraction	41 Descriptor - Adding and Subtracting Decimals Role, Student

		6 2 5 5 0	

OBJECTIVE: Given an addition or subtraction problem involving decimals, the student will solve the problem.

SAMPLE ITEM:

```
  1.5
+2.3
```

Answer: 3.8

Level 6 Classification - Decimals, Subtraction	41 Descriptor - Adding and Subtracting Decimals Role, Student

		6 2 5 5 5		

OBJECTIVE: Given in horizontal form a mixed decimal and a whole number, the student will compute and write the product.

SAMPLE ITEM: Compute and write the product: 1.06 x 13

Answer: **13.78**

Level 6 Classification - Decimals, Multiplication	41 Descriptor - Multiplying Decimals Role, Student

		6 2 5 6 0		

OBJECTIVE: Students will select the number which is the correct answer to a given multiplication problem. Both the multiplier and multiplicand will have two or fewer digits to the right of the decimal point. The total number of digits in either the multiplier or multiplicand will not exceed four.

SAMPLE ITEM:

60.57
x 34.21

(A) 2,072.0997
(B) 2,057.7897
(C) 1,061.0997
(D) 20,7209.97

Level 6 Classification - Decimals, Multiplication	41 Descriptor - Multiplying Decimals Role, Student

		6 2 5 6 5	

OBJECTIVE: Given two decimals, the student will compute and write the product.

SAMPLE ITEM: Compute and write the product: 3.63 x 4.43

Answer: 16.0809

Level 6 Classification - Decimals, Multiplication	41 Descriptor - Multiplying Decimals Role, Student

		6 2 5 7 0	

OBJECTIVE: Students will select the number which is the correct answer to a multiplication or division problem in which the multiplicand or dividend is a decimal number with four or fewer digits to the right of the decimal point. The multiplier or divisor will be either 10, 100, or 1000.

SAMPLE ITEM:

67.542
x 1000

(A) 6,754.2
(B) .67542
(C) 67,542
(D) 675,420

Level 6 Classification - Decimals, Multiplication	41 Descriptor - Multiplying or Dividing Decimals Role, Student

		6 2 5 7 5	

OBJECTIVE: Students will select the number which is the correct answer to a given division problem. Both the dividend and the divisor will have two or fewer digits to the right of the decimal point. The total number of digits in the dividend will not exceed five. No quotients will contain remainders.

SAMPLE ITEM: $6.05\overline{)750.20}$

(A) 1.24 (B) 124 (C) 12.4 (D) 1.124

Level 6 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 2 5 8 0	

OBJECTIVE: Given in horizontal form a decimal dividend of four digits or less, and a whole number divisor of two digits or less, the student will compute and write the quotient.

SAMPLE ITEM: Compute and write the following quotient.

$.7350 \div 15$

Answer: .0490

Level 6 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 2 5 8 5	

OBJECTIVE: Given in horizontal form a whole number dividend of four digits or less and a decimal divisor of two digits, the student will compute and write the quotient.

SAMPLE ITEM: Compute and write the quotient: $1032 \div .12$

Answer: 8,600

Level 6 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 2 5 9 0	

OBJECTIVE: Given in horizontal form a mixed decimal dividend of four digits or less and a whole number divisor of two digits or less, the student will compute and write the quotient.

SAMPLE ITEM: Find the quotient: $8.64 \div 32$

Answer: .27

Level 6 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 2 5 9 5	

OBJECTIVE: Given a decimal fraction of seven digits or less, expressed in expanded notation, the student will rewrite it as a decimal fraction.

SAMPLE ITEM: Write the decimal fraction for the following:

$$(7 \times \frac{1}{10}) + (3 \times \frac{1}{100}) + (4 \times \frac{1}{1000}) + (9 \times \frac{1}{10,000})$$

Answer: .7349

Level 6 Classification - Decimals, Changing to a fraction and vice versa	41 Descriptor - Expanded Notation - Decimals Role, Student

		6 2 6 0 0	

OBJECTIVE: Given an improper or mixed fraction, the student will rewrite it as a decimal numeral.

SAMPLE ITEM: Rewrite as a decimal: $2\frac{1}{4}$

Answer: 2.25

Level 6 Classification - Decimals, Changing to a fraction and vice versa	41 Descriptor - Changing Fractions to Decimals Role, Student

		6 2 6 0 5	

OBJECTIVE: Given a mixed decimal, five digits or less, the student will rewrite it as an equivalent mixed fraction.

SAMPLE ITEM: Write an equivalent mixed fraction for 16.101.

Answer: $16\frac{101}{1000}$

Level 6 Classification - Decimals, Changing to a fraction and vice versa	41 Descriptor - Changing Decimals to Fractions Role, Student

		6 2 6 1 0	

OBJECTIVE: Students will be presented with a proper fraction or a mixed number. The students will then select the decimal number which means the same as the proper fraction or mixed number. Students may also be presented with a decimal number less than 100,000 and with four or fewer digits to the right of the decimal point. In this case the students will select the proper fraction or mixed number that means the same as the decimal number.

SAMPLE ITEM: How is 0.13 written as a common fraction?

(A) $1\frac{3}{10}$ (B) $\frac{13}{1000}$ (C) $\frac{13}{100}$ (D) $\frac{13}{10}$

Level 6 Classification - Decimals, Changing to a fraction and vice versa	41 Descriptor - Changing Fractions to Decimals Role, Student

		6 2 6 1 5	

OBJECTIVE: Given a problem involving the multiplication of decimal numerals, the student will name the product rounded off to a specified place value.

SAMPLE ITEM: Find the product (round off to the nearest 10th).

$$\begin{array}{r} 4.31 \\ \times\ .5 \\ \hline \end{array}$$

Answer: 2.2

Level 6 Classification - Decimals, Rounding Off	41 Descriptor - Multiplying Decimals Role, Student

		6 2 6 1 5	0 0 0 0 5

OBJECTIVE: Given a decimal numeral, the student will round it off to the nearest 10th, 100th, 1000th, 10,000, as indicated.

SAMPLE ITEM: Round off .3894 to the nearest 1000th.

Answer: .389

Level 6 Classification - Decimals, Rounding Off	41 Descriptor - Rounding Off Decimals Role, Student

		6 2 6 2 0	

OBJECTIVE: Given a division example involving decimals, the student will name the quotient rounded off to a specified place value.

SAMPLE ITEM: Name the quotient rounded off to the nearest 100th place.

$$9\overline{)3.658}$$

Answer: .41

Level 6 Classification - Decimals, Rounding Off	41 Descriptor - Dividing Decimals Role, Student

		6 2 6 2 0	0 0 0 0 5

OBJECTIVE: Students will be presented with a decimal number less than 100 with five or fewer digits to the right of the decimal point. They will then select the number which is the decimal numeral rounded to the nearest 10th or 100th.

SAMPLE ITEM: What is 8.3284 rounded to the nearest 100th?

(A) 8.328 (B) 8.3 (C) 8.32 (D) 8.33

Level 6 Classification - Decimals, Rounding Off	41 Descriptor - Rounding Off Decimals Role, Student

		6 2 6 2 5		

OBJECTIVE: Students will select the decimal number that has a given digit in a given place value. The decimal numbers will be less than 100,000 and will have four or fewer digits to the right of the decimal point.

SAMPLE ITEM: Which number has a 7 in the **1000th place?**

(A) 7,346.12
(B) 2.167
(C) 3.6017
(D) 641.37

Level 6 Classification - Decimals, Place Value	41 Descriptor - Place Value in Decimal Notation Role, Student

		6 2 6 3 0		

OBJECTIVE: Given a mixed decimal, **seven digits or less,** the student will select and write the digit in any given place.

SAMPLE ITEM: In the following mixed decimal, write the digit that is in the **100th place:**

273.9821

Answer: 8

Level 6 Classification - Decimals, Place Value	41 Descriptor - Place Value in Decimal Notation Role, Student

		6 2 6 3 5	

OBJECTIVE: Given a decimal numeral, the student will rewrite it in words.

SAMPLE ITEM: Write the following number in words:

6.25

Answer: Six and twenty-five hundredths

Level 6 Classification - Decimals, Writing decimals as words and vice versa	41 Descriptor - Writing Decimals as Words Role, Student

		6 2 6 4 0	

OBJECTIVE: Students will select the decimal number which is the same as a decimal expression written out in words or vice versa. The decimal number will be less than 100,000 and will have four or fewer digits to the right of the decimal point.

SAMPLE ITEM: How do you write "ten and fourteen hundredths"?

(A) 10.014
(B) 10.14
(C) 1410
(D) 10.104

Level 6 Classification - Decimals, Writing decimals as words and vice versa	41 Descriptor - Writing Decimals as Words Role, Student

		6 2 6 4 5		

OBJECTIVE: Given a decimal fraction written in words, the student will rewrite it as a decimal numeral.

SAMPLE ITEM: Write as a decimal numeral: five and twenty-six hundredths

Answer: 5.26

Level 6 Classification - Decimals, Writing decimals as words and vice versa	41 Descriptor - Changing Decimals to Words Role, Student

		6 2 6 5 0		

OBJECTIVE: Given a list of decimal numerals, the student will name those numerals that are repeating decimals or terminating decimals.

SAMPLE ITEM: From the list below, name the repeating decimals:

$.\overline{333}$, .5, .25, $.\overline{1212}$, .075

Answer: $.\overline{333}$, $.\overline{1212}$

Level 6 Classification - Decimals, Repeating and Terminating	41 Descriptor - Repeating and Terminating Decimals Role, Student

		6 2 6 5 5		

OBJECTIVE: Students will select the decimal number which correctly completes a number sentence.

SAMPLE ITEM: $1.39 < \square$

(A) 1.339
(B) 1.35
(C) 1.40
(D) 1.341

Level 6 Classification - Decimals, Order (comparing Fractions)	41 Descriptor - Comparing Decimal Fractions Role, Student

		6 2 6 6 0		

OBJECTIVE: Students will be presented with an incomplete number sentence of the form: X $>$, $<$, or $=$ $\square$; X may be a proper fraction, a mixed number, a whole number, or a decimal number. If X is a decimal number, it will have four or fewer digits to the right of the decimal point. The students will then select the proper fraction, mixed number, whole number, or decimal number which correctly completes the incomplete number sentence. The number which correctly completes the number sentence does not have to be the same type of number as X.

SAMPLE ITEM: $\frac{5}{9} > \square$

(A) $\frac{3}{5}$ (B) $\frac{2}{3}$ (C) $\frac{1}{2}$ (D) $\frac{7}{8}$

Level 6 Classification - Decimals, Order (comparing Fractions)	41 Descriptor - Comparing Decimal Fractions Role, Student

Ratio, Proportion, and Percent

		6 2 6 7 0		

OBJECTIVE: Given a number expressed as a percent, the student will write its decimal equivalent.

SAMPLE ITEM: Write the decimal equivalent of 39%.

Answer: .39

Level 6 Classification - Ratio, Proportion, and Percent Percent	41 Descriptor - Converting Percent/ Decimal/Ratio/Fraction Role, Student

		6 2 6 7 5		

OBJECTIVE: Students will select the number which correctly completes an incomplete percent number sentence of the form: X% of Y = ☐
All choices from which the students may select will be natural numbers.

SAMPLE ITEM: 5% of 40 = ☐

(A) 200 (B) 8 (C) 35 (D) 2

Level 6 Classification - Ratio, Proportion, and Percent Percent	41 Descriptor - Computing Percents Role, Student

		6 2 6 8 0	

OBJECTIVE: Students will select the number which correctly completes an incomplete percent number sentence of the form: X is ☐ % of Y, All choices from which the students may select will be natural numbers.

SAMPLE ITEM: 9 is ☐ % of 45

(A) 20% (B) 5% (C) 36% (D) 9%

Level 6 Classification - Ratio, Proportion, and Percent, Percent	41 Descriptor - Computing Percents Role, Student

		6 2 6 8 5	

OBJECTIVE: Given a problem involving finding percentage of a number, the student will solve the problem.

SAMPLE ITEM: Find 25% of 48.

Answer: 12

Level 6 Classification - Ratio, Proportion, and Percent, Percent	41 Descriptor - Computing Percents Role, Student

		6 2 6 9 0	

OBJECTIVE: Given a fraction, the student will compute and write its equivalent percent.

SAMPLE ITEM: Write the following fraction as a percent: $\frac{19}{25}$

Answer: 76%

Level 6 Classification - Ratio, Proportion, and Percent, Changing Ratio to Percent and Vice Versa	41 Descriptor - Converting Percent/ Decimal/Ratio/Fraction Role, Student

		6 2 6 9 5	

OBJECTIVE: Given a fraction, the student will rename it as a percent rounded off to the hundredths place.

SAMPLE ITEM: Change $\frac{1}{4}$ to a percent.

Answer: 25%

Level 6 Classification - Ratio, Proportion, and Percent, Changing Ratio to Percent and Vice Versa	41 Descriptor - Computing Percents Role, Student

		6 2 7 0 0	

OBJECTIVE: Students will be presented with a ratio less than 1 in which the numerator and denominator are each equal to or less than 100. They will then select the number which represents the percent that corresponds to the given ratio to the nearest whole percent.

SAMPLE ITEM: $\frac{17}{25} = \square$ %

(A) 17% (B) 25% (C) 68% (D) 42%

Level 6 Classification - Ratio, Proportion, and Percent, Changing Ratio to Percent and Vice Versa	41 Descriptor - **Converting Percent/ Decimal/Ratio/Fraction** Role, Student

		6 2 7 0 5	

OBJECTIVE: Students will select the number which, when replaced for N in the following proportional number sentence, will correctly complete the sentence:
A:B = N:C.
Numbers A, B, and C will be equal to or less than 100 and will be natural numbers. N will also be a natural number.

SAMPLE ITEM: 8:24 = $\square$: 18

(A) 9 (B) 3 (C) 6 (D) 12

Level 6 Classification - Ratio, Proportion, and Percent, Proportion	41 Descriptor - Solving Proportion Role, Student

Measurement

		6 2 7 1 0		

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition or subtraction problem involving two or three of the following English linear quantities: inch, foot, and yard. Students may have to convert one unit of measure into another for purposes of regrouping for subtraction or for simplifying answers in addition. All measurement expressions will use only natural numbers.

SAMPLE ITEM:

6 ft. 8 in.
+ 2 ft. 6 in.

(A) 9 ft. 2 in.
(B) 8 ft. 2 in.
(C) 9 ft. 14 in.
(D) 8 ft. 4 in.

Level 6 Classification - Measurement, Linear - English/Metric	41 Descriptor - Operations with Linear Measure Role, Student

		6 2 7 1 5		

OBJECTIVE: Given a number of feet, the student will convert and write an equivalent measure in miles.

SAMPLE ITEM: Convert 31,680 feet into miles.

Answer: 6 miles.

Level 6 Classification - Measurement, Linear - English/Metric	41 Descriptor - Converting Linear Measure Role, Student

		6 2 7 2 0	

OBJECTIVE: Given a number of square inches, square feet, or square yards, the student will convert and write its equivalent measure of square yards, square feet, or square inches.

SAMPLE ITEM: Convert 9 sq. yds. into square feet.

Answer: 81 sq. ft.

Level 6 Classification - Measurement, Area	41 Descriptor - Converting Area Role, Student

		6 2 7 2 5	

OBJECTIVE: Given two linear metric measures of different units, the student will compute and write the sum or difference.

SAMPLE ITEM: Compute and write the sum of 2 centimeters and 56 millimeters. Write your answer in centimeters.

Answer: 7.6 centimeters

Level 6 Classification - Measurement, Linear - English/Metric	41 Descriptor - Operations With Linear Measure Role, Student

		6 2 7 3 0	

OBJECTIVE: Given a number of meters, the student will convert and write an equivalent measure in millimeters, centimeters, decimeters, or kilometers.

SAMPLE ITEM: Convert and write 50 meters as an equivalent measure in centimeters.

Answer: 5000 cm.

Level 6 Classification - Measurement, Linear - English/Metric	41 Descriptor - Converting Linear Measure Role, Student

		6 2 7 3 5	

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition (or subtraction) problem involving up to four of the following English liquid quantities: gallon, quart, pint, cup, and ounce. Students may have to convert one unit of measure to another for purposes of regrouping for subtraction or for simplifying answers in addition. All measurement expressions will use only natural numbers.

SAMPLE ITEM:

4 gal. 3 qt. 1 pt. 1 cup
+1 gal. 2 qt. 1 pt. 1 cup

(A) 3 gal. 1 pt. 1 cup
(B) 4 gal. 1 pt. 1 cup
(C) 4 gal. 1 qt. 1 cup
(D) 6 gal. 2 qt. 1 pt.

Level 6 Classification - Measurement, Liquid - English/Metric	41 Descriptor - Operations with Liquid Measure Role, Student

		6 2 7 4 0	

OBJECTIVE: Given a number of cubic inches, cubic feet, or cubic yards, the student will convert and write its equivalent measure in cubic yards, cubic feet, or cubic inches.

SAMPLE ITEM: Convert 4 cubic feet into cubic inches.

Answer: 6912 cu. in.

Level 6 Classification - Measurement, Volume - English/Metric/Dry Measure	41 Descriptor - Converting Volume Role, Student

		6 2 7 4 5	

OBJECTIVE: Given a number of ounces or pounds, the student will convert it to its equivalent measure in pounds or ounces.

SAMPLE ITEM: Convert and write $4\frac{1}{2}$ pounds as an equivalent number of ounces.

Answer: 72 oz.

Level 6 Classification - Measurement, Weight - English/Metric	41 Descriptor - Converting Weights Role, Student

		6 2 7 5 0	

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition (or subtraction) problem involving up to three of the following English weight quantities: ton, pound, and ounce. Students may have to convert one unit of measure to another for purposes of regrouping for subtraction or for simplifying answers in addition. Both natural numbers and proper fractions with denominators of 2, 4, 8, and 16 may be used in the measurement expression.

SAMPLE ITEM:

6 tons 860 lb. 8 oz.
- 2 tons 850 lb. 12 oz.

(A) 4 tons 10 lb. 4 oz.
(B) 4 tons 9 lb. 12 oz.
(C) 4 tons 9 lb. 6 oz.
(D) 4 tons 10 lb. 12 oz.

Level 6 Classification - Measurement, Weight - English/Metric	41 Descriptor - Operations with Weights Role, Student

		6 2 7 5 5	

OBJECTIVE: Given a mixed linear English measure or English weight, the student will multiply it by a given number and write the product.

SAMPLE ITEM: Multiply 4 yards 2 feet by 5. Express your answer in yards and feet in simplest form.

Answer: 23 yards 1 foot

Level 6 Classification - Measurement, Weight - English/Metric	41 Descriptor - Operations With Measurement Role, Student

		6 2 7 6 0	

OBJECTIVE: Given an English weight or linear English measure, the student will divide it by a given number and write the quotient.

SAMPLE ITEM: Divide 36 pounds 24 ounces by 6. Express your answer in pounds and ounces in the simplest form.

Answer: 6 lb. 4 oz.

Level 6 Classification - Measurement, Weight - English/Metric	41 Descriptor - Operations with Measurement Role, Student

		6 2 7 6 5	

OBJECTIVE: Given a number of grams, the student will convert and write an equivalent measure in centigrams, decigrams, or kilograms.

SAMPLE ITEM: Convert the following measure to decigrams:

67 grams

Answer: 670 dg.

Level 6 Classification = Measurement, Weight - English/Metric	41 Descriptor - Converting Weights Role, Student

		6 2 7 7 0	

OBJECTIVE: Given two metric weights of different units, the student will compute and write the sum or difference.

SAMPLE ITEM: Compute the sum of the following measures in centigrams:
14 grams + 8 centigrams

Answer: 1408 cg.

Level 6 Classification - Measurement, Weights - English/Metric	41 Descriptor - Operations with Weights Role, Student

		6 2 7 7 5	

OBJECTIVE: Given a linear measure or metric weight, the student will multiply it by a given number and write the product.

SAMPLE ITEM: Compute the product of 5 cm. 5 mm. X 5. Write your answer in centimeters.

Answer: 27.5 cm.

Level 6 Classification - Measurement, Weights - English/Metric	41 Descriptor - Operations with Measurement Role, Student

		6 2 7 8 0	

OBJECTIVE: Given a linear metric measure or a metric weight, the student will divide it by a given number and write the quotient.

SAMPLE ITEM: Compute and write the quotient of 16 m. 32 dm. ÷ 8. Specify your answer in meters.

Answer: 2.4 m.

Level 6 Classification - Measurement, Weight - English/Metric	41 Descriptor - Operations with Measurement Role, Student

		6 2 7 8 5	

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition (or subtraction) problem involving up to three of the time quantities of hour, minute, and second. Students may have to convert one unit of measure to another for purposes of regrouping for subtraction or for simplifying answers in addition. All measurement expressions may use both natural numbers and proper fractions.

SAMPLE ITEM:

16 hr. 56 min. 45 sec.
- 7 hr. 59 min. 32 sec.

(A) 9 hr. 3 min. 13 sec.
(B) 8 hr. 3 min. 13 sec.
(C) 8 hr. 57 min. 13 sec.
(D) 9 hr. 57 min. 13 sec.

Level 6 Classification - Measurement, Time	41 Descriptor - Operations with Time Role, Student

		6 2 7 9 0	

OBJECTIVE: Given a line segment and a ruler, the student will measure the line segment to the nearest sixteenth of an inch.

SAMPLE ITEM: How long, to the nearest sixteenth of an inch, is the line segment below.

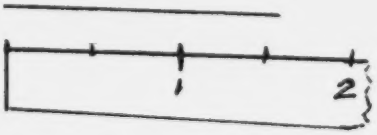
Answer: $1\frac{7}{16}$ in.

Level 6 Classification - Measurement, Precision	41 Descriptor - Precision of Measurements Role, Student

		6 2 7 9 5	

OBJECTIVE: Students will be presented with a picture of a ruler calibrated in halves, quarters, eighths, or sixteenths along side of the ruler. The student will then select the mixed number or fraction that represents the length of the object to the nearest calibrated measurement.

SAMPLE ITEM: How long is the line segment to the closest half inch?



(A) $1\frac{1}{2}$ in. (B) 2 in. (C) $\frac{1}{2}$ in. (D) $2\frac{1}{2}$ in.

Level 6 Classification - Measurement, Precision	41 Descriptor - Precision of Measurements Role, Student

		6 2 8 0 0	

OBJECTIVE: Given a measurement in one linear unit, the student will write it in another unit of measure.

SAMPLE ITEM: 25 ft. = 8 yds. 1 ft.

Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Converting Linear Measure Role, Student

	.	6 2 8 0 5	

OBJECTIVE: Given an area in one measurement, the student will write it in another measurement.

SAMPLE ITEM: 10 sq. ft. = 1440 sq. in.

Level 6 Classification - Measurement, Area	41 Descriptor - Converting Area Role, Student

		6 2 8 1 0	

OBJECTIVE: Given two compound measurements in the English system, the student will add (no carrying).

SAMPLE ITEM:

$$\begin{array}{r} 8 \text{ lbs. } 4 \text{ oz.} \\ +\ 6 \text{ lbs. } 2 \text{ oz.} \\ \hline 14 \text{ lbs. } 6 \text{ oz.} \end{array}$$

Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

		6 2 8 1 5	

OBJECTIVE: Given a series of no more than five English compound measurements, the student will add.

SAMPLE ITEM: Add and simplify:

$$\begin{array}{r} 25 \text{ ft. } 3 \text{ in.} \\ 10 \text{ ft. } 10 \text{ in.} \\ +\ 3 \text{ ft. } 6 \text{ in.} \\ \hline 39 \text{ ft. } 7 \text{ in.} \end{array}$$

Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

		6 2 8 2 0	

OBJECTIVE: Given two compound measurements in the English system, the student subtracts (no borrowing).

SAMPLE ITEM: Subtract: 3 qts. 1 pt.
- 1 qt. 1 pt.
2 qt.

Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

		6 2 8 2 5	

OBJECTIVE: Given two compound measurements in the English system, the student will subtract with borrowing.

SAMPLE ITEM: Subtract: 6 yds. 1 ft.
- 2 yds. 2 ft.
3 yds. 2 ft.

Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

		6 2 8 3 0	

OBJECTIVE: Given a compound measurement in the English system, the student will multiply.

SAMPLE ITEM: Multiply:

$$\begin{array}{r} 3 \text{ ft. } 2 \text{ in.} \\ \times \quad 5 \\ \hline 15 \text{ ft. } 10 \text{ in.} \end{array}$$

Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

		6 2 8 3 5	

OBJECTIVE: Given a measurement in the English system, the student will divide (no regrouping).

SAMPLE ITEM: Divide:

$$\begin{array}{r} 3 \text{ yds. } 4 \text{ in.} \\ \hline 3) \overline{9 \text{ yds. } 12 \text{ in.}} \end{array}$$

Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

		6 2 8 4 0	

OBJECTIVE: Given a measure in the English system, the student will divide (regrouping required).

SAMPLE ITEM:

$$8\overline{)\,25\text{ yds. }12\text{ in.}}\qquad 3\text{ yds. }6\text{ in.}$$

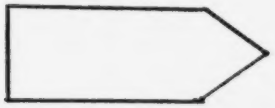
Level 6 Classification - Measurement, Mixed Measure/ Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

Geometry

		6 2 8 4 5	

OBJECTIVE: Students will be presented with a picture of a simple closed curve. They will then select the name of the curve from among the following: octagon, pentagon, polygon, square, and triangle.

SAMPLE ITEM: What is the name of this figure?



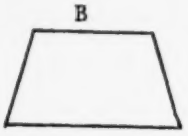
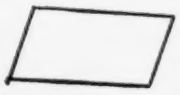
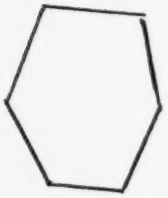
(A) square
(B) pentagon
(C) octagon
(D) triangle

Level 6 Classification - Geometry, Identifying Plane Figures	41 Descriptor - Identifying Plane Figures Role, Student

		6 2 8 5 0	

OBJECTIVE: Given a polygon, the student will identify the correct name for the polygon.

SAMPLE ITEM: Write the letter of column B in front of the correct term of column A.

A	B
_____trapezoid	a) 
_____parallelogram	b)
_____hexagon	c) 
_____pentagon	d) 

Answer: a
c
d
b

Level 6 Classification - Geometry, Identifying Plane Figures	41 Descriptor - Identifying Plane Figures Role, Student

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		6 2 8 6 0		

OBJECTIVE: Given a set of polygons, the student will select the trapezoid, hexagon, pentagon, or octagon.

SAMPLE ITEM: Which of the following figures is a trapezoid?

A. B. C. D.

Answer: D.

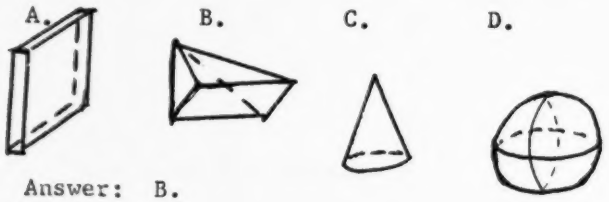
Level 6 Classification - Geometry, Identifying Plane Figures	41 Descriptor - Identifying Plane Figures Role, Student

		6 2 8 6 5		

OBJECTIVE: Given drawings of geometric solids, the student will select the prism, pyramid, sphere, or cone.

SAMPLE ITEM: Select the pyramid.

A. B. C. D.



Answer: B.

Level 6 Classification - Geometry, Identifying Plane Figures	41 Descriptor - Identifying Solids Role, Student

		6 2 8 7 0		

OBJECTIVE: Given a pictorially represented geometric shape, the student will identify the shape.

SAMPLE ITEM: Identify the following quadrilateral.

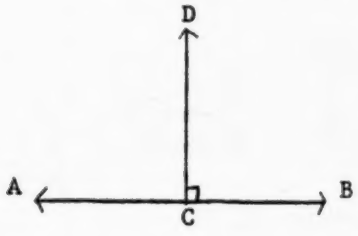
Answer: rectangle, parallegram.

Level 6 Classification - Geometry, Identifying Plane Figures	41 Descriptor - Identifying Plane Figures Role, Student

		6 2 8 7 5		

OBJECTIVE: Students will be presented with a picture of perpendicular or parallel lines, line segments, or rays. They will then select the notation which exactly describes the picture. An example of such a notation is $\overleftrightarrow{AB} \perp \overrightarrow{BC}$

SAMPLE ITEM:



(A) $\overline{CD} \parallel \overline{AB}$

(B) $\overrightarrow{CD} \perp \overleftrightarrow{AB}$

(C) $\overleftrightarrow{CD} \perp \overrightarrow{AB}$

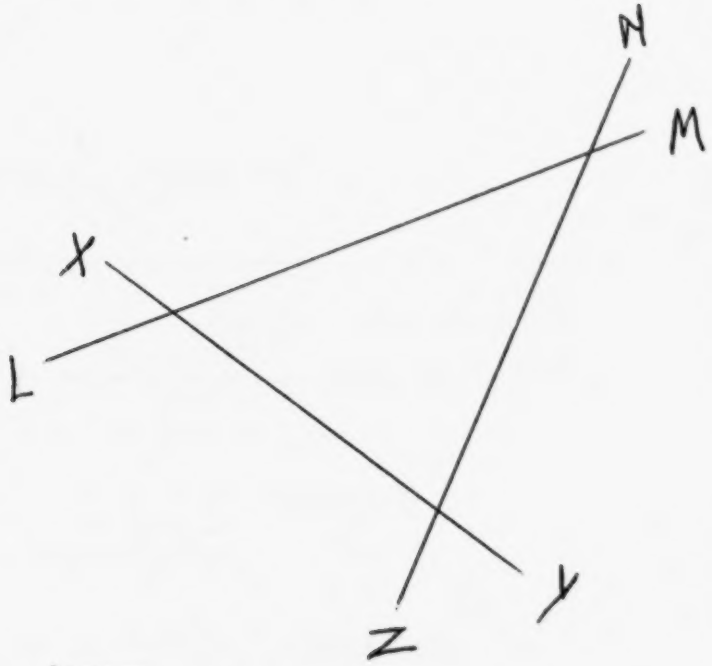
(D) $\overrightarrow{CD} \parallel \overleftrightarrow{AB}$

Level 6 Classification - Geometry, Lines	41 Descriptor - Parallels and Perpendicular Lines Role, Student

		6 2 8 8 0	

OBJECTIVE: Given a set of line segments, the student will write the perpendicular or intersection.

SAMPLE ITEM: (a) Draw a line perpendicular to $\overline{xy}$.
(b) Name the intersecting line segments:



Answer:

$\overline{xy} \cap \overline{nz}$

$\overline{xy} \cap \overline{lm}$

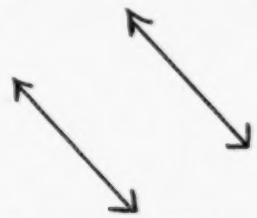
$\overline{lm} \cap \overline{nz}$

Level 6 Classification - Geometry, Lines	41 Descriptor - Parallels and Perpendicular Lines Role, Student

		6 2 8 8 5		

OBJECTIVE: Given pairs of lines, the student will label them as parallel, perpendicular, and/or intersecting.

SAMPLE ITEM: Label the pair of lines as parallel, perpendicular, and/or intersecting.



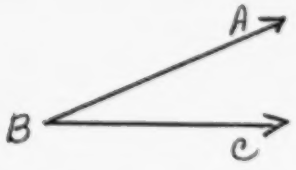
Answer: parallel

Level 6 Classification - Geometry, Lines	41 Descriptor - Parallels and Perpendicular Lines Role, Student

		6 2 8 9 0		

OBJECTIVE: Given an angle, the student will name it as an acute, an obtuse, a right, or a straight angle.

SAMPLE ITEM: Identify the following angle as acute, obtuse, right, or straight.



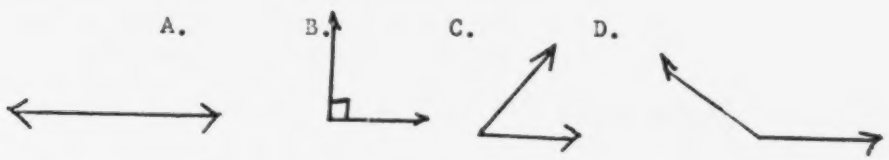
Answer: acute

Level 6 Classification - Geometry, Angles	41 Descriptor - Angles Classification Role, Student

		6 2 8 9 5		

OBJECTIVE: Given a set of angles, the student will select the straight, acute, obtuse or right angle.

SAMPLE ITEM: Select the letter that indicates the acute angle in the following group:



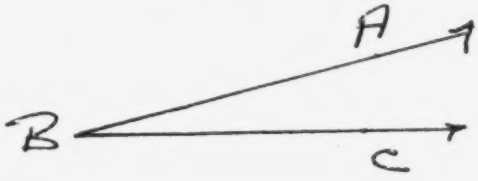
Answer: C

Level 6 Classification - Geometry, Angles	41 Descriptor - Angles Classification Role, Student

		6 2 9 0 0		

OBJECTIVE: Given an angle and a protractor, the student will correctly name the measurement of the angle within two degrees.

SAMPLE ITEM: Measure the following angle.



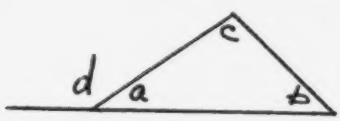
Answer: 14°

Level 6 Classification - Geometry, Angles	41 Descriptor - Measuring Angles Using Protractor Role, Student

		6 2 9 0 5		

OBJECTIVE: Students will be presented with a picture of one or more angles which are uniquely labeled by letters. The students will select the name which describes the pictured angle or angles. Students will select from among right, vertex, interior, exterior, or adjacent angles. Students may also be presented with a picture of an angle, and a protractor. In this case, they will select the number which corresponds to the number of degrees in the pictured angle.

SAMPLE ITEM: Which angle is an exterior angle?



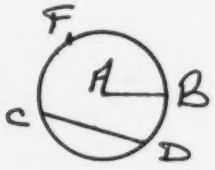
(A) a
(B) b
(C) c
(D) d

Level 6 Classification - Geometry, Angles	41 Descriptor - Angles Classification Role, Student

		6 2 9 1 0		

OBJECTIVE: Given a circle, the student will name an arc, diameter, radius, or chord.

SAMPLE ITEM: Name the radius of the circle:



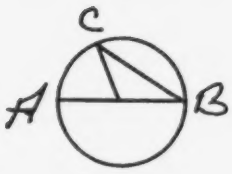
Answer: $\overline{AB}$

Level 6 Classification - Geometry, Circles	41 Descriptor - Identifying parts of a circle Role, Student

		6 2 9 1 5	

OBJECTIVE: Students will be presented with a picture of a labeled circle, and will select the name of a labeled part. They will select the name from among arc, circumference, diameter, and radius. If the shape is an arc, students will select the number which corresponds to the number of degrees in the arc.

SAMPLE ITEM: What is $\overset{\frown}{BC}$?



(A) radius
(B) circumference
(C) arc
(D) diameter

Level 6 Classification - Geometry, Circles	41 Descriptor - Identifying parts of a circle Role, Student

		6 2 9 2 0	

OBJECTIVE: Given the radius or diameter of a circle, the student will compute and write its circumference. ($\pi = 3\frac{1}{7}$).

SAMPLE ITEM: Using $\pi = 3\frac{1}{7}$, find the circumference of a circle with a diameter of 28 inches.

Answer: 88 in.

Level 6 Classification - Geometry, Circles	41 Descriptor - Circumference of a Circle Role, Student

		6 2 9 3 0		

OBJECTIVE: The student will write the number of dimensions in a point, in a line, in a plane, and in space.

SAMPLE ITEM: A line has ___?___ dimension(s).

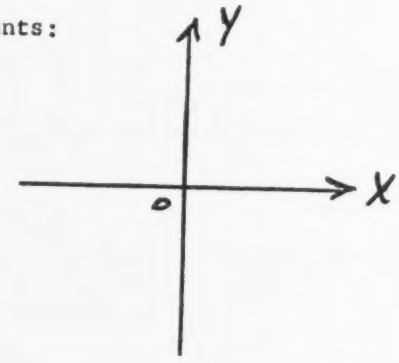
Answer: 1

Level 6 Classification - Geometry, Coordinate Geometry	41 Descriptor - Dimensions Role, Student

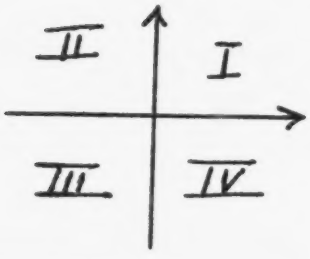
		6 2 9 3 5		

OBJECTIVE: Given a coordinate plane with the axes, the student will name the quadrants of the plane.

SAMPLE ITEM: Label the quadrants:



Answer:

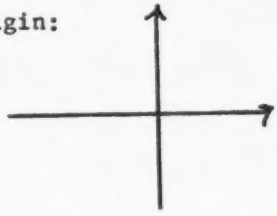


Level 6 Classification - Geometry, Coordinate Geometry	41 Descriptor - Quadrants Role, Student

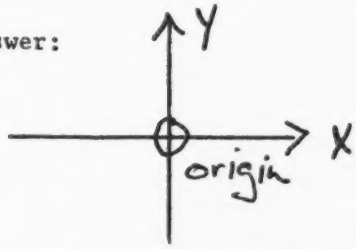
		6 2 9 4 0		

OBJECTIVE: Given the four quadrants, the student will name the x and y axes and the origin.

SAMPLE ITEM: Name the axes and the origin:



Answer:



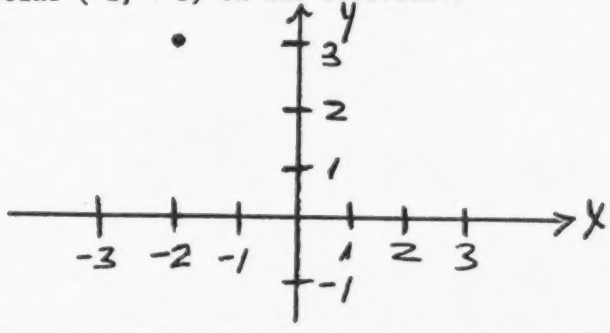
Level 6 Classification - Geometry, Coordinate Geometry	41 Descriptor - Identifying Axes Role, Student

		6 2 9 4 5		

OBJECTIVE: Given an ordered number pair which are the coordinates of a point, the student will locate the point on the coordinate system.

SAMPLE ITEM: Find the point (-2, + 3) on the coordinate system.

Answer:



Level 6 Classification - Geometry, Coordinate Geometry	41 Descriptor - Plotting Points on Coordinate Axes Role, Student

		6 2 9 5 0	

OBJECTIVE: Given units on the x and y axis, the student will find the coordinates.

SAMPLE ITEM: Give the coordinates of the following points: 3 units right of the y axis, 2 units up from the x axis.

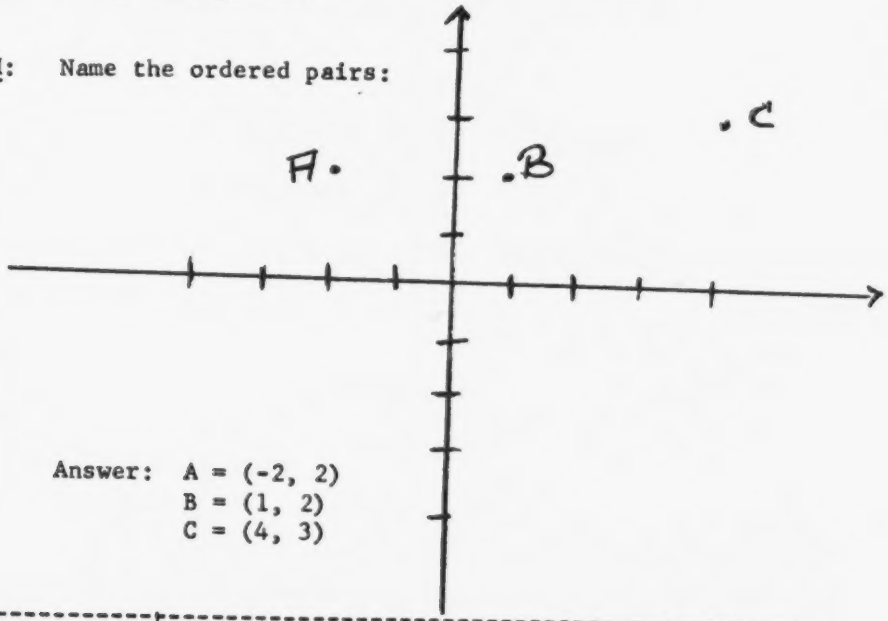
Answer: (3, 2)

Level 6 Classification - Geometry, Coordinate Geometry	41 Descriptor - Plotting Points on Coordinate Axes Role, Student

		6 2 9 5 5	

OBJECTIVE: Given x = a coordinate system, the student will name the ordered pairs which indicate the designated points.

SAMPLE ITEM: Name the ordered pairs:



Answer: A = (-2, 2)
B = (1, 2)
C = (4, 3)

Level 6 Classification - Geometry, Coordinate Geometry	41 Descriptor - Plotting Points on Coordinate Axes Role, Student

		6 2 9 6 0	

OBJECTIVE: Given the length and width of a rectangle, the student will compute and write its area.

SAMPLE ITEM: Find the area of a rectangle with a width of 8 feet and a length of 13 feet.

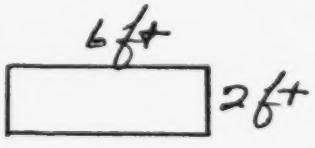
Answer: 104 sq. feet

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area of a Rectangle Role, Student

		6 2 9 6 5	

OBJECTIVE: Students will be presented with a picture of a rectangular region with the length of each side labeled. They will then select the number and accompanying unit which is equal to the area of the rectangular region. All lengths will be either natural or decimal numbers with two or fewer digits to the right of the decimal point, and the units will be inches, feet, yards, meters, or centimeters, but not combinations of them.

SAMPLE ITEM: What is the area of this rectangle?



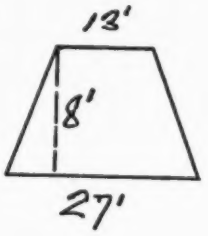
(A) 16 sq. feet
(B) 12 sq. feet
(C) 16 feet
(D) 12 feet

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area of a Rectangle Role, Student

		6 2 9 7 0		

OBJECTIVE: Given a trapezoid with base and height given, the student will compute the area.

SAMPLE ITEM: Find the area of the trapezoid below.



Answer: 160 sq. ft.

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area of Quadrilateral Role, Student

		6 2 9 7 5		

OBJECTIVE: Given a parallelogram with base and height given, the student will compute the area.

SAMPLE ITEM: Find the area of a parallelogram whose base is 15 yds. and height is 9 yds.

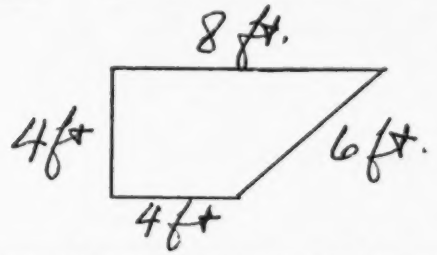
Answer: 135 sq. yds.

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area of Quadrilateral Role, Student

		6 2 9 8 0	

OBJECTIVE: Students will be presented with a picture of a polygon of eight sides or less with the length of each side given. They will then select the number and unit which is equal to the perimeter of the given polygon. All lengths will be either natural or decimal numbers with two or fewer digits to the right of the decimal point, and the units may be inches, feet, yards, meters, or centimeters, but not combinations of them.

SAMPLE ITEM: What is the perimeter of the figure?



(A) 22 feet
(B) 18 feet
(C) 24 feet
(D) 20 feet

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		6 2 9 8 5	

OBJECTIVE: Given a polygon with dimensions, the student will compute the perimeter.

SAMPLE ITEM: Find the perimeter of a triangle whose sides are 8 in., 5 in., and 7 in.

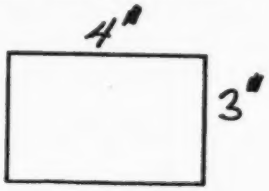
Answer: 20 in.

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		6 2 9 9 0	

OBJECTIVE: Given a problem involving operations with measures, the student will find the correctly labeled solution.

SAMPLE ITEM: Find the perimeter.



Answer: 14 feet

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		6 2 9 9 5	

OBJECTIVE: Given the length and width and height, the student will compute and write the volume of any rectangular prism.

SAMPLE ITEM: Compute and write the volume of a rectangular prism with a height of 20 ft., a width of 15 ft., and a length of 6 ft.

Answer: 1800 cu. ft.

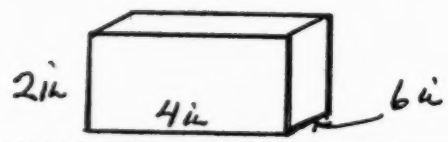
Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Volume Role, Student

		6 3 0 0 0	

OBJECTIVE: Students will be presented with a picture of a rectangular prism with the length of each edge labeled in inches, feet, yards, meters, or centimeters, but not in combinations of them. Students will then select the number and accompanying unit which is equal to the surface area of the prism. All lengths will be in natural numbers or decimal numbers with only one digit to the right of the decimal point.

SAMPLE ITEM: What is the surface area of the rectangular prism?

(A) 48 sq. in.
(B) 72 sq. in.
(C) 88 sq. in.
(D) 44 sq. in.



Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Surface Area Role, Student

		6 3 0 0 5	

OBJECTIVE: Given the height and base of a triangle, the student will compute and write its area.

SAMPLE ITEM: Find and write the area of a triangle with a height of 14 ft., and a base of 7 ft.

Answer: 49 sq. ft.

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area of a Triangle Role, Student

		6 3 0 1 0		

OBJECTIVE: Given a set of geometric figures, the student will identify the congruent figures.

SAMPLE ITEM: Which of the following figures are congruent?

Answer: A $\cong$ C

Level 6 Classification - Geometry, Triangles/Congruence/Similarity	41 Descriptor - Congruence Role, Student

		6 3 0 1 5		

OBJECTIVE: Students will select a line segment or angle which is congruent to a given line segment or angle.

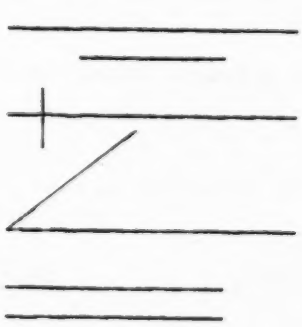
SAMPLE ITEM: Which answer shows two congruent line segments?

(A)

(B)

(C)

(D)



Level 6 Classification - Geometry, Triangles/Congruence/Similarity	41 Descriptor - Congruence Role, Student

Problem Solving/Word Problems

		6 3 0 2 0	

OBJECTIVE: Given a word problem, the student will name the operation or operations that are used to solve the problem.

SAMPLE ITEM: Name the operation or operations needed to solve the problem:

If Marc drove 300 miles at 60 miles per hour, how many hours did he drive?

Answer: division.

Level 6 Classification - Problem Solving/ Word Problems, Problem Solving, Basic Techniques	41 Descriptor - Indicating Operations/ Problem Solving Role, Student

		6 3 0 2 5	

OBJECTIVE: Given a verbal problem, the student will name the solution.

SAMPLE ITEM: Lisa practices the piano 3 hours a day. How many hours does she practice in 32 days?

Answer: 96 hours.

Level 6 Classification - Problem Solving/ Word Problems, Problem Solving, Basic Techniques	41 Descriptor - Indicating Operations/ Problem Solving Role, Student

		6 3 0 3 0	

OBJECTIVE: Given a verbal problem involving basic operations, the student will write the equation for that problem.

SAMPLE ITEM: Write an equation for the problem:

Mr. Jones travels 64 miles each day. How far does he travel in 365 days?

Answer: $365 \times 64 = n$

Level 6 Classification - Problem Solving/ Word Problems, Problem Solving, Basic Techniques	41 Descriptor - Writing Equations From Problems Role, Student

		6 3 0 3 5	

OBJECTIVE: Students will select the correct answer to a given word problem. The problem will be no longer than three sentences. All numbers used in it will be natural numbers. Addition, subtraction, multiplication, and division may be used, but only two of these four operations may occur in any single problem. Problems involving division may specify that a remainder is to be the answer.

SAMPLE ITEM: John has 63 marbles, Fred has 81, and Sam has 48. If the three boys divide the marbles among themselves equally, how many marbles will each boy get?

(A) 31 (B) 27 (C) 64 (D) 16

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Operations on Whole Numbers	41 Descriptor - Word Problems - Whole Numbers Role, Student

		6 3 0 4 0	

OBJECTIVE: Students will select the correct answer to a given word problem. The problem will be no longer than three sentences. At least one number used in the given problem must be a proper fraction or a mixed number. Any two of the following four operations may be required to solve the given problem: addition, subtraction, multiplication, and division.

SAMPLE ITEM: Sally used $\frac{2}{3}$ cups of milk when she baked a cake.

She used twice as much milk making pudding the same day. How much milk did she use in all for the cake and pudding?

(A) $1\frac{1}{3}$ (B) $1\frac{2}{3}$ (C) $2\frac{1}{3}$ (D) 2 cups

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Operations on Fractions	41 Descriptor - Word Problems - Fractions Role, Student

		6 3 0 4 5	

OBJECTIVE: Given a two step word problem involving common fractions, the student will compute and write the answer (solution).

SAMPLE ITEM: A carpenter has a board 10 ft. long. He cuts off two pieces from this board. One piece is $3\frac{3}{4}$ ft. long and the other is $1\frac{1}{2}$ ft. long. How many feet will be left from the original board?

Answer: $4\frac{3}{4}$ ft.

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Operations on Fractions	41 Descriptor - Word Problems - Fractions Role, Student

		6 3 0 5 0	

OBJECTIVE: Given a three-step word problem involving common fractions or whole numbers, the student will compute and write the answer (solution).

SAMPLE ITEM: Sam mowed a part of Mrs. Brown's lawn. Mrs. Brown paid Sam at the rate of 75¢ an hour. Sam worked for 4/5 of an hour. Peter finished mowing Mrs. Brown's lawn the following day. Mrs. Brown paid him 75¢ an hour too. It took Peter 2/3 of an hour to finish the job. How much more did Sam make than Peter?

Answer: 10¢

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Operations on Fractions	41 Descriptor - Word Problems - Fractions Role, Student

		6 3 0 5 5	

OBJECTIVE: Given a word problem, the student will estimate the answer for the problem.

SAMPLE ITEM: If the total dinner cost of $24.50 is shared equally among 7 people, what is the estimated cost per person?

Answer: between $3.00 and $4.00

Level 6 Classification - Problem Solving/ Word Problems, Consumer Mathematics	41 Descriptor - Estimating/Problem Solving Role, Student

		63060	

OBJECTIVE: Given a verbal problem involving operations with fractions, the student will write the solution.

SAMPLE ITEM: Anne weighs $55\frac{1}{2}$ pounds. Molly weighs $64\frac{1}{3}$ pounds, and Margaret weighs $60\frac{1}{2}$ pounds. What is their total weight?

Answer: $180\ \frac{1}{3}$ pounds.

Level 6 Classification - Problem Solving/ Word Problems, Problem involving Operations on Fractions	41 Descriptor - Word Problems - Fractions Role, Student

		63065	

OBJECTIVE: Students will select the correct answer to a given word problem. The problem will be no longer than three sentences. At least one number used in the given problem must be a decimal number. All decimal numbers used in the given problem will have four or fewer digits to the right of the decimal point. Any two of the following four operations may be required to solve the problem: addition, subtraction, multiplication, and division.

SAMPLE ITEM: A man had a steel bar that was 20 inches long. He cut three pieces from the bar of 2.7 inches, 11.5 inches, and 4.3 inches. How much of the steel bar was left?

(A) 2.5 in. (B) 18.5 in. (C) 3.5 in. (D) 1.5 in.

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Operations on Decimals	41 Descriptor - Word Problems - Decimals Role, Student

		6 3 0 7 0	

OBJECTIVE: Given a word problem which states a relationship between two quantities, the student will write the ratio which describes the relationship.

SAMPLE ITEM: If a car dealer has 34 Fords and 47 Volkswagons, write a ratio expressing the relationship of Fords to Volkswagons.

Answer: 34:47

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Percent/Proportion/Ratio	41 Descriptor - Word Problems - Ratio - Proportion - Percent Role, Student

		6 3 0 7 5		

OBJECTIVE: Students will select the answer to a given word problem no longer than three sentences. At least one of the numbers in the problem or its answer must be a percent.

SAMPLE ITEM: 1,700 trees grew when 2,500 were planted. What percent of the planted trees grew?

(A) 35% (B) 28.6% (C) 1.43% (D) 68%

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Percent/Proportion/Ratio	41 Descriptor - Word Problems - Ratio - Proportion - Percent Role, Student

		6 3 0 8 0	

OBJECTIVE: Students will select the answer for a given word problem no longer than three sentences. The problem will require that the students solve a proportion. All numbers used will be natural numbers equal to or less than 100. The correct answer will also be a natural number.

SAMPLE ITEM: If it takes 3 hours to walk 12 miles, how long does it take to walk 20 miles?

(A) 4 hours (B) 6 hours
(C) 5 hours (D) $4\frac{1}{2}$ hours

Level 6 Classification - Problem Solving/ Word Problems, Problems involving Percent/Proportion/Ratio	41 Descriptor - Word Problems - Ratio - Proportion - Percent Role, Student

		6 3 0 8 5	

OBJECTIVE: Given a cost and a rate of discount, the student will compute and write the amount of the discount or the sale price.

SAMPLE ITEM: A baseball glove in Caldor's costs $12.00. If the glove is on sale and the discount is 15%, what will the glove cost?

Answer: $10.20

Level 6 Classification - Problem Solving/ Word Problems, Consumer Mathematics	41 Descriptor - Word Problems - Consumer Mathematics Role, Student

		6 3 0 9 0	

OBJECTIVE: Students will select the correct answer to a given word problem no longer than three sentences. At least one number in the problem must be a money number. Any three of the following four operations may be required to solve the given problem: addition, subtraction, multiplication, and division.

SAMPLE ITEM: Ann had $5.00 to spend. She bought a record for $2.79 and a book for $1.98. How much change did she receive?

(A) $0.23 (B) $1.33 (C) $1.77 (D) $1.23

Level 6 Classification - Problem Solving/ Word Problems, Consumer Mathematics	41 Descriptor - Word Problems - Consumer Mathematics Role, Student

		6 3 0 9 5	

OBJECTIVE: Students will select the correct measurement expression that correctly answers a problem of the form of: "A student has a 2 gallon pail of water which weighs 16 pounds. How much does the water weigh per quart?" Two measurement units will be used in each problem, both of which will belong to the same system of measurement; i.e., either English or metric. A student may have to convert units within such a system of measurement but will not have to convert from one system to another.

SAMPLE ITEM: A metal bar that is 4 feet long weighs 96 pounds. How much does a 9-inch piece of the bar weigh?

(A) 24 pounds (C) 18 pounds
(B) 36 pounds (D) 10.67 pounds

Level 6 Classification - Problem Solving/ Word Problems, Measurement	41 Descriptor - Word Problems - Involving Measurement Role, Student

		6 3 1 0 5	

OBJECTIVE: Given a word problem involving rate, the student will solve the problem.

SAMPLE ITEM: If Jim's train travels at an average speed of 90 miles per hour, how many hours will it take to cover 450 miles?

Answer: 5 hours

Level 6 Classification - Problem Solving/ Word Problems, Measurement	41 Descriptor - Word Problems - Involving Rate Role, Student

Algebra

		6 3 1 1 0	

OBJECTIVE: Given a list of number sentences, the student will select and write true, false, or open number sentence.

SAMPLE ITEM: Which of the following is a true number sentence, which is a false number sentence, and which is an open number sentence?

A. $26 + 13 = 40$
B. $37 - 11 = 26$
C. $48 - \square = 19$

Answer: True B
False A
Open C

Level 6 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - True and False Number Sentences Role, Student

		6 3 1 1 5	

OBJECTIVE: Given a multiplication problem with a missing factor, the student will name the missing factor.

SAMPLE ITEM: Find the missing factor: $\frac{1}{3} \times \square = \frac{2}{15}$

Answer: $\frac{2}{5}$

Level 6 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 3 1 2 0	

OBJECTIVE: Given a division problem with a missing factor, the student will name the missing factor.

SAMPLE ITEM: Find the missing factor:

$$\frac{1}{2} \div \square = \frac{7}{8}$$

Answer: $\frac{4}{7}$

Level 6 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 3 1 2 5	

OBJECTIVE: Given a problem involving combined operations, the student will write the solution.

SAMPLE ITEM: $(5 + 4) \times 9 =$ ____

Answer: 81

Level 6 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 3 1 3 0	

OBJECTIVE: The student will solve three term equations with one unknown when the unknown is the answer.

SAMPLE ITEM: Solve for $\square$: $3 \times 8 = \square$

Answer: $\square = 24$

Level 6 Classification - Algebra, Solving Equations	41 Descriptor - Solving Equations Role, Student

		6 3 1 3 5	

OBJECTIVE: The student will solve three term equations with one unknown, when the unknown is not the answer.

SAMPLE ITEM: Solve for $\square$: $\square + 5 = 12$

Answer: 7

Level 6 Classification - Algebra, Solving Equations	41 Descriptor - Solving Equations Role, Student

		6 3 1 4 0	

OBJECTIVE: The student will write a related addition equation for a subtraction equation.

SAMPLE ITEM: Write a related addition equation for $17 - \square = 7$.

Answer: $7 + \square = 17$

or

$\square + 7 = 17$

Level 6 Classification - Algebra, Solving Equations	41 Descriptor - Rewriting Equations Role, Student

		6 3 1 4 5	

OBJECTIVE: The student will write a related subtraction equation for an addition equation.

SAMPLE ITEM: The equation $7 + \square = 11$ written as a related subtraction equation.

Answer: $11 - 7 = \square$

or

$11 - \square = 7$

Level 6 Classification - Algebra, Solving Equations	41 Descriptor - Rewriting Equations Role, Student

		6 3 1 5 0	

OBJECTIVE: The student will write a related multiplication equation for a division equation.

SAMPLE ITEM: Write the related multiplication problem for $\square \div 3 = 12$.

Answer: $12 \times 3 = \square$

Level 6 Classification - Algebra, Solving Equations	41 Descriptor - Rewriting Equations Role, Student

		6 3 1 5 5	

OBJECTIVE: The student will write a related division equation for a multiplication equation.

SAMPLE ITEM: Write a related division equation for $\square \times 4 = 36$.

Answer: $36 \div 4 = \square$

Level 6 Classification - Algebra, Solving Equations	41 Descriptor - Rewriting Equations Role, Student

Statistics and Probability

		63161	

OBJECTIVE: Given a table of information, the student will answer questions based on the table.

SAMPLE ITEM:

12 inches	= 1 foot
36 inches	= 1 yard
3 feet	= 1 yard
5280 feet	= 1 mile
1760 yards	= 1 mile

(a) How many feet in 5 yards?
(b) How many yards in $\frac{1}{2}$ mile?

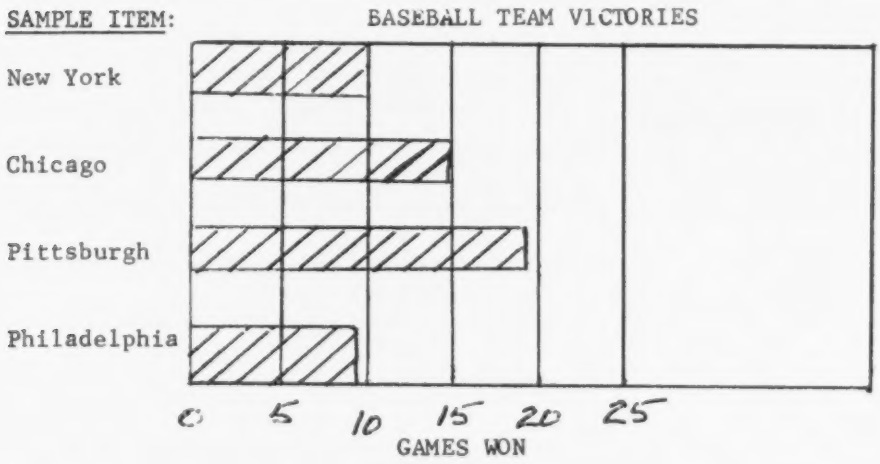
Answer: (a) 15 feet.
(b) 880 yards.

Level 6 Classification - Statistics and Probability Graphs and Tables	41 Descriptor - Interpretation of Tables Role, Student

		63160	

OBJECTIVE: Given a bar graph, the student will answer questions based on the bar graph.

SAMPLE ITEM:



Which team won the most games?

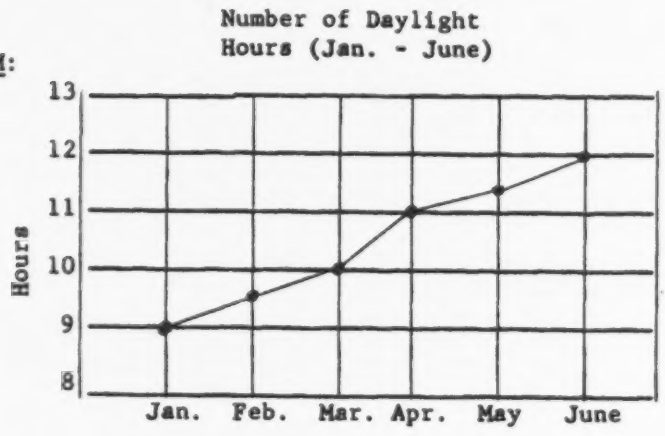
Answer: Pittsburgh

Level 6 Classification - Statistics and Probability Graphs and Tables	41 Descriptor - Interpretation of Bar Graphs Role, Student

		6 3 1 6 5		

OBJECTIVE: Given a broken line graph, the student will answer questions based on the graph.

SAMPLE ITEM:



What is the average number of daylight hours in February?

Answer: $9\frac{1}{2}$ hours

Level 6 · Classification - Statistics and Probability, Graphs and Tables

41 Descriptor - Interpretation of Line Graphs

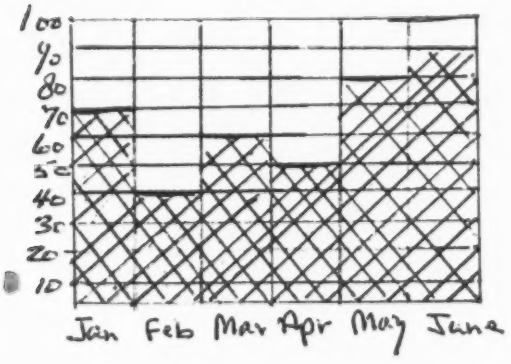
Role, Student

		6 3 1 7 0	

OBJECTIVE: Students will select the answer to a given word problem no longer than three sentences. The problem will be accompanied by either a bar graph, a double bar graph, or a line graph with no scales to exceed 100. Students may be asked to interpolate or extrapolate. Answers may either be numeric in form or of the type "A is greater than B."

SAMPLE ITEM: The graph shows how many automobiles were sold over a six month period. How many more automobiles were sold in May than in February?

(A) 50
(B) 40
(C) 80
(D) 30

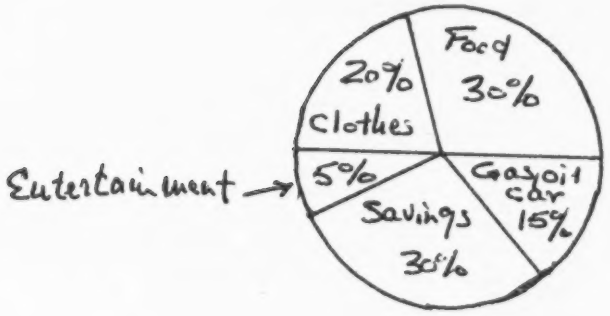


Level 6 Classification - Statistics and Probability Graphs and Tables	41 Descriptor - Bar or Line Graphs Role, Student

		6 3 1 7 5	

OBJECTIVE: Given a bar graph, line graph or circle graph, the student will write the value of any given item.

SAMPLE ITEM: The following graph shows how Mr. Jones spends his monthly income. Using the graph, write the name of the item on which Mr. Jones spends the least amount of his monthly income.



Answer: Entertainment

Level 6 Classification - Statistics and Probability Graphs and Tables	41 Descriptor - Interpretation of Bar or Circle Graphs Role, Student

		6 3 1 8 0	

OBJECTIVE: Given a list of items in a word problem, the student will compute and write the average.

SAMPLE ITEM: In five games, Mary bowled 106, 84, 121, 162, and 102. What was her average score?

Answer: 115

Level 6 Classification - Statistics and Probability Mean	41 Descriptor - Finding the Mean Role, Student

Supplementary

Level 6

		6 6 2 0 0	

OBJECTIVE: Given a list of symbols, the student will select the symbol for either the empty (null) set, subset, union, or intersection.

SAMPLE ITEM: Select the symbol for the empty set.

A. $\cap$ B. $\cup$ C. $\emptyset$ D. $\in$

Answer: C,

Level 6 Classification - Sets, Listing a Set/Set Notation/ Terminology/Finite-Infinite	41 Descriptor - Set Notation Role, Student

		6 6 2 0 5	

OBJECTIVE: Given two sets, listed or in a Venn diagram, each with four elements or less, the student will select the union or intersection.

SAMPLE ITEM: Select the union of the following sets.

$\{a, b\}$ $\{b, c\}$

A. $\{b, a\}$ B. $\{b,c\}$ C. $\{b\}$ D. $\{a,b,c\}$

Answer: D.

Level 6 Classification - Sets, Union and Intersection/Disjoint/ Pictorial Representation	41 Descriptor - Intersection and Union of Sets Role, Student

		6 6 2 1 5	

OBJECTIVE: Given an open number sentence involving the symbols for less than ($<$) or greater than ($>$), the student will select the value that will make it a true sentence.

$\square > 4$

A correct value for $\square$ is?

A. 0 B. 2 C. 3 D. 5

Answer: D.

Level 6 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Inequalities on Whole Numbers Role, Student

		6 6 2 2 0	

OBJECTIVE: Given any number, seven digits or less, the student will select the number rounded off to any given place.

SAMPLE ITEM: Round off 4536 to the nearest 100.

A. 4,500 B. 4,600 C. 500 D. 600

Answer: A.

Level 6 Classification - Number, Numeral, and Numeration Systems, Rounding	41 Descriptor - Rounding Off Role, Student

		6 6 2 3 0		

OBJECTIVE: Given four addends, each four digits or less, the student will select the sum.

SAMPLE ITEM: Add:
23
14
35
28

A. 98 B. 100 C. 99 D. 97

Answer: B.

Level 6 Classification - Whole Numbers, Addition	41 Descriptor - Adding Whole Numbers Role, Student

		6 6 2 3 5		

OBJECTIVE: Given two factors each two digits or less, the student will select the product.

SAMPLE ITEM: Multiply: 23 x 18

A. 307 B. 314 C. 394 D. 414

Answer: D.

Level 6 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 6 2 4 0	

OBJECTIVE: Given a dividend, four digits or less and a divisor of two digits, the student will select the quotient.

SAMPLE ITEM: Divide the following: $27\overline{)864}$

A. 31 B. 19 C. 23 D. 32

Answer: D.

Level 6 Classification - Whole Numbers, Division	41 Descriptor - Division without Remainder Role, Student

		6 6 2 4 5	

OBJECTIVE: Given four number sentences, the student will select the number sentence which uses the commutative property for addition or multiplication.

SAMPLE ITEM: Which number sentence uses the commutative property for addition?

A. $3 + 4 = 4 + 3$ B. $3x\ (4 + 7) = (4 + 7) \times 3$
C. $3 \times 4 = 4 \times 3$ D. $(4 \times 7) \times 3 = 4 \times 7 \times 3$

Answer: A.

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Commutative - Whole Numbers Role, Student

		6 6 2 5 0	

OBJECTIVE: Given four number sentences, the student will select the number sentence which uses the associative property of addition or multiplication.

SAMPLE ITEM: Which number sentence uses the associative property of addition?

A. $7 + (6 + 5) = (6 + 5) + 7$
B. $(7 + 6) + 5 = 7+(6 + 5)$
C. $(7 + 6) + 5 = 7 + 6 + 5$
D. $7 \times (6 + 5) = (7 \times 6) + (7 \times 5)$

Answer: B.

Level 6 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Associative - Whole Numbers Role, Student

		6 6 2 5 5	

OBJECTIVE: Given two numbers, the student will select the greatest common factor. (G.C.F.)

SAMPLE ITEM: What is the greatest common factor of 6 and 9?

A. 18 B. 3 C. 6 D. 2

Answer: B.

Level 6 Classification - Whole Numbers, Factors/Common Factors/G.C.F./ Divisibility Rules	41 Descriptor - Greatest Common Factor Role, Student

		6 6 2 6 0	

OBJECTIVE: Students will select the number which is the lowest common multiple of a pair of numbers each of which is less than or equal to fifty.

SAMPLE ITEM: What is the lowest common multiple (LCM) of 6 and 9?

(A) 3
(B) 18
(C) 24
(D) 36

Answer: (B)

Level 6 Classification - Whole Numbers, Multiples/Common Multiples/L.C.M.	41 Descriptor - Lowest Common Multiple Role, Student

		6 6 2 6 5	

OBJECTIVE: Given four sets of numbers, the student will select the set containing only prime numbers or only composite numbers.

SAMPLE ITEM: Which of the following sets contains only prime numbers?

A. $\{2, 3, 4\}$ B. $\{3, 4, 5\}$ C. $\{2, 3, 5\}$ D. $\{3, 6, 9\}$

Answer: C.

Level 6 Classification - Whole Numbers, Prime/Composite	41 Descriptor - Identifying Numbers as Prime or Composite Role, Student

		6 6 2 7 5	

OBJECTIVE: Students will select the proper fraction or mixed number in simplest form which is the correct answer to a given multiplication problem between any two of the following: proper fraction, whole number, and mixed number.

SAMPLE ITEM: $1/3 \times 1\frac{1}{3} = ?$

(A) 2/3 (B) 1 (C) 4/9 (D) 5/6

Answer: (C)

Level 6 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Mixed Numbers and Fractions Role, Student

		6 6 2 8 0	

OBJECTIVE: Given a division problem with fractions in which either the divisor or the dividend is a whole number, the student will select the quotient in lowest terms.

SAMPLE ITEM: Divide 4/5 by 4.

(A) 5 (B) 1/5 (C) 16/5 (D) 5/16

Answer: (B)

Level 6 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Division of Fractions Role, Student

		6 6 2 9 0	

OBJECTIVE: Given in horizontal form four mixed decimals, each four digits or less, the student will select the sum.

SAMPLE ITEM: Add: .31 + .21 + .42 + .03

(A) .097 (B) .97 (C) 9.7 (D) 1.24

Answer: (B)

Level 6 Classification - Decimals, Addition	41 Descriptor - Adding Decimals Role, Student

		6 6 2 9 5	

OBJECTIVE: Given four decimal fractions, each four digits or less, the student will select the sum.

SAMPLE ITEM: Select the sum.

$$\begin{array}{r} 1.7 \\ 12.13 \\ 2.814 \\ +\ 7 \\ \hline \end{array}$$

(A) 23.644
(B) 22.644
(C) 13.644
(D) 33.644

Answer: (A)

Level 6 Classification - Decimals, Addition	41 Descriptor - Adding Decimals Role, Student

		6 6 3 0 0	

OBJECTIVE: Given two mixed decimals, each four digits or less, the student will select the difference.

SAMPLE ITEM: Subtract: 12.83 - 6.19

(A) 6.74 (B) 6.64 (C) 6.65 (D) 7.65

Answer: (B)

Level 6 Classification - Decimals, Subtraction	41 Descriptor - Subtracting Decimals Role, Student

		6 6 3 0 5	

OBJECTIVE: Given a whole number dividend of four digits or less and a decimal divisor of two digits, the student will select the quotient.

SAMPLE ITEM: Find the quotient: 2703 ÷ .03

(A) 901 (B) 9.01 (C) 90100 (D) 9010

Answer: (C)

Level 6 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 6 3 1 0	

OBJECTIVE: Given a mixed decimal dividend of four digits or less and a mixed divisor of two digits, the student will select the quotient.

SAMPLE ITEM: Find the quotient $2.40 \div 1.2$

(A) .36 (B) .02 (C) .2 (D) 2.0

Answer: (D)

Level 6 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 6 3 1 5	

OBJECTIVE: Given a decimal dividend of four digits or less and a whole number divisor, of two digits or less, the student will select the quotient.

SAMPLE ITEM: Find the quotient of $1.2 \div 6$

(A) 1.8 (B) 2.4 (C) .2 (D) 2

Answer: (C)

Level 6 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 6 3 2 0		

OBJECTIVE: Given a decimal fraction of five digits or less, the student will select it rounded off to the nearest 10th, 100th, 1,000th,or 10,000th.

SAMPLE ITEM: Select .454 rounded off to the nearest 10th.

(A) .45 (B) .5 (C) .454 (D) .4

Answer: (B)

Level 6 Classification - Decimals, Rounded Off	41 Descriptor - Rounding Off Decimals Role, Student

		6 6 3 2 5		

OBJECTIVE: Given a mixed decimal seven digits or less, and a place value, the student will select the value of any given digit.

SAMPLE ITEM: Select the value of the underlined digit: ,1<u>2</u>5

(A) two 10ths (B) two 100ths
(C) twenty 10ths (D) two 1000ths

Answer: (B)

Level 6 Classification - Decimals, Place Value	41 Descriptor - Place Value in Decimal Notation Role, Student

		6 6 3 3 0		

OBJECTIVE: Students will select the decimal number that has a given digit in a given place value. The decimal numbers will be less than 100,000 and will have four or fewer digits to the right of the decimal point.

SAMPLE ITEM: Which number has a 7 in the 1000ths place?

(A) 7,346.12
(B) 2.167
(C) 3.6017
(D) 641.37

Answer: (B)

Level 6 Classification - Decimals, Place Value	41 Descriptor - Place Value in Decimal Notation Role, Student

		6 6 3 3 5		

OBJECTIVE: Students will select the decimal number which correctly completes a number sentence.

SAMPLE ITEM: $1.34 > ?$

(A) 1.339
(B) 1.35
(C) 1.40
(D) 1.341

Answer: (A)

Level 6 Classification - Decimals, Order (comparing fractions)	41 Descriptor - Comparing Decimal Fractions Role, Student

		6 6 3 6 5	

OBJECTIVE: Given a number expression as a percent, the student will select its equivalent common fraction in lowest terms.

SAMPLE ITEM: Express 20% as a fraction.

(A) 200/100 (B) 2/5 (C) 3/5 (D) 1/5

Answer: (D)

Level 6 Classification - Ratio, Proportion, and Percent, Percent	41 Descriptor - Converting Percent/Decimal/Ratio/Fraction Role, Student

		6 6 3 7 0	

OBJECTIVE: Given a common fraction, the student will select its equivalent percent.

SAMPLE ITEM: Express 3/4 as a percent.

(A) 3/4% (B) 75% (C) 7.5% (D) 3%

Answer: (B)

Level 6 Classification - Ratio, Proportion, and Percent, Percent	41 Descriptor - Converting Percent/Decimal/Ratio/Fraction Role, Student

		6 6 3 8 0	

OBJECTIVE: Given two measures of gallons and quarts, the student will select the sum or difference.

SAMPLE ITEM: Add and simplify:

$$\begin{array}{r} 3 \text{ gal. } 3 \text{ qts.} \\ +\ 2 \text{ gal. } 2 \text{ qts.} \end{array}$$

(A) 5 gals. 4 qts. (B) 5 gal. 6 qts.
(C) 6 gals. 5 qts. (D) 6 gal. 1 qt.

Answer: (D)

Level 6 Classification - Measurement, Liquid - English/Metric	41 Descriptor - Operations with Liquid Measure Role, Student

		6 6 3 8 5	

OBJECTIVE: Given two measures of hours and minutes or of weeks and days or of years and months, the student will select the difference.

SAMPLE ITEM: Subtract:

$$\begin{array}{r} 7 \text{ years } 9 \text{ months} \\ -\ 2 \text{ years } 11 \text{ months} \end{array}$$

(A) 4 yrs. 8 mos. (B) 5 yrs. 10 mos.
(C) 5 yrs. 8 mos. (D) 4 yrs. 10 mos.

Answer: (D)

Level 6 Classification - Measurement, Time	41 Descriptor - Operations with Time Role, Student

		6 6 3 9 0	

OBJECTIVE: Given two measures of hours and minutes or of weeks and days or of years and months, the student will select the sum.

SAMPLE ITEM: Add: 3 weeks 5 days
+ 2 weeks 4 days

(A) 6 wk. 2 days (B) 5 wk. 2 days
(C) 7 wk. 2 days (D) 8 wk. 2 days

Answer: (A)

Level 6 Classification - Measurement, Time	41 Descriptor - Operations with Time Role, Student

		6 6 3 9 5	

OBJECTIVE: Given a number of hours or minutes, the student will select the equivalent number of minutes or hours.

SAMPLE ITEM: Convert 3 hrs. to minutes.

(A) 90 (B) 20 (C) 180 (D) 300

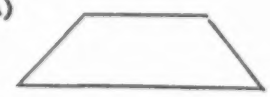
Answer: (C)

Level 6 Classification - Measurement, Time	41 Descriptor - Converting Time Units Role, Student

		6 6 4 0 5	

OBJECTIVE: Given a set of quadrilaterals, the student will select the trapezoid, rectangle, square, or parallelogram.

SAMPLE ITEM: Choose the square.

(A) 

(B)

(C)

(D)

Answer: (C)

Level 6 Classification - Geometry, Identifying Figures	41 Descriptor - Identifying Plane Figures Role, Student

		6 6 4 1 0	

OBJECTIVE: Given the length and width of a rectangle, the student will select its perimeter or area.

SAMPLE ITEM: What is the perimeter of a rectangle which has a length of 3 ft. and width of 2 ft.?

(A) 10 ft. (B) 5 ft. (C) 6 ft. (D) 60 inches

Answer: (A)

Level 6 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area or Perimeter Role, Student

		6 6 4 1 5	

OBJECTIVE: Given the height and base of a triangle, the student will select its area.

SAMPLE ITEM: Find the area of a triangle having a height of 14 feet and a base of 7 feet.

(A) 98 sq. ft. (B) 49 sq. ft.

(C) $29\frac{1}{2}$ sq. ft. (D) 21 sq. ft.

Answer: (B)

Level 6 Classification - Geometry, Triangles/Congruence/Similarity	41 Descriptor - Area of a Triangle Role, Student

		6 6 4 2 5	

OBJECTIVE: Given any 2 of the following items: distance, rate,or time, the student will select the value of the unknown term.

SAMPLE ITEM: A train travels at a speed of 55 miles per hour. If it travels for 5 hrs., what distance will it travel?

(A) 275 miles (B) 225 miles (C) 375 miles

(D) 325 miles

Answer: (A)

Level 6 Classification - Problem Solving/Word Problems, Motion Problems	41 Descriptor - Word Problems - Involving Rate Role, Student

		6 6 4 3 5		

OBJECTIVE: Given an inequality problem involving addition, subtraction, multiplication, or division of whole numbers, the student will select the answer. (solution)

SAMPLE ITEM: Select the solution set if the replacement set is the set of whole numbers.

$$M + 3 > 6$$

(A) $\{0, 1, 2, 3...\}$ (B) $\{1, 2, 3...\}$
(C) $\{4, 5, 6...\}$ (D) $\{1, 2, 3, 4...\}$

Answer: (C)

Level 6 Classification - Algebra, Number Sentences/Open Sentences	41 Descriptor - Solving Inequalities Role, Student

		6 6 4 4 5		

OBJECTIVE: Given the scale for a graph, the student will select the value of a given measure.

SAMPLE ITEM: One inch on a bar graph represents 4 apples. How many apples are represented by $2\frac{1}{2}$ inches on this graph?

(A) 10 (B) 20 (C) 5 (D) 40

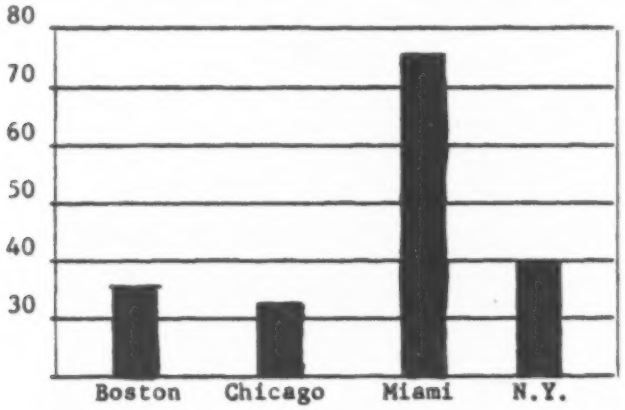
Answer: (A)

Level 6 Classification - Statistics and Probability, Graphs and Tables	41 Descriptor - Interpretation of all Graphs Types Role, Student

		6 6 4 5 0		

OBJECTIVE: Given a bar graph, line graph, pictograph or circle graph, the student will select the value of any given item.

SAMPLE ITEM: This graph shows the average temperatures on January 1 for 4 cities. Which city has the lowest average temperature for Jan. 1st?



(A) Boston (C) Miami

(B) Chicago (D) N.Y.

Answer: (B)

Level 6 Classification - Statistics and Probability, Graphs and Tables	41 Descriptor - Interpretation of all Graphs Types Role, Student